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September 1944

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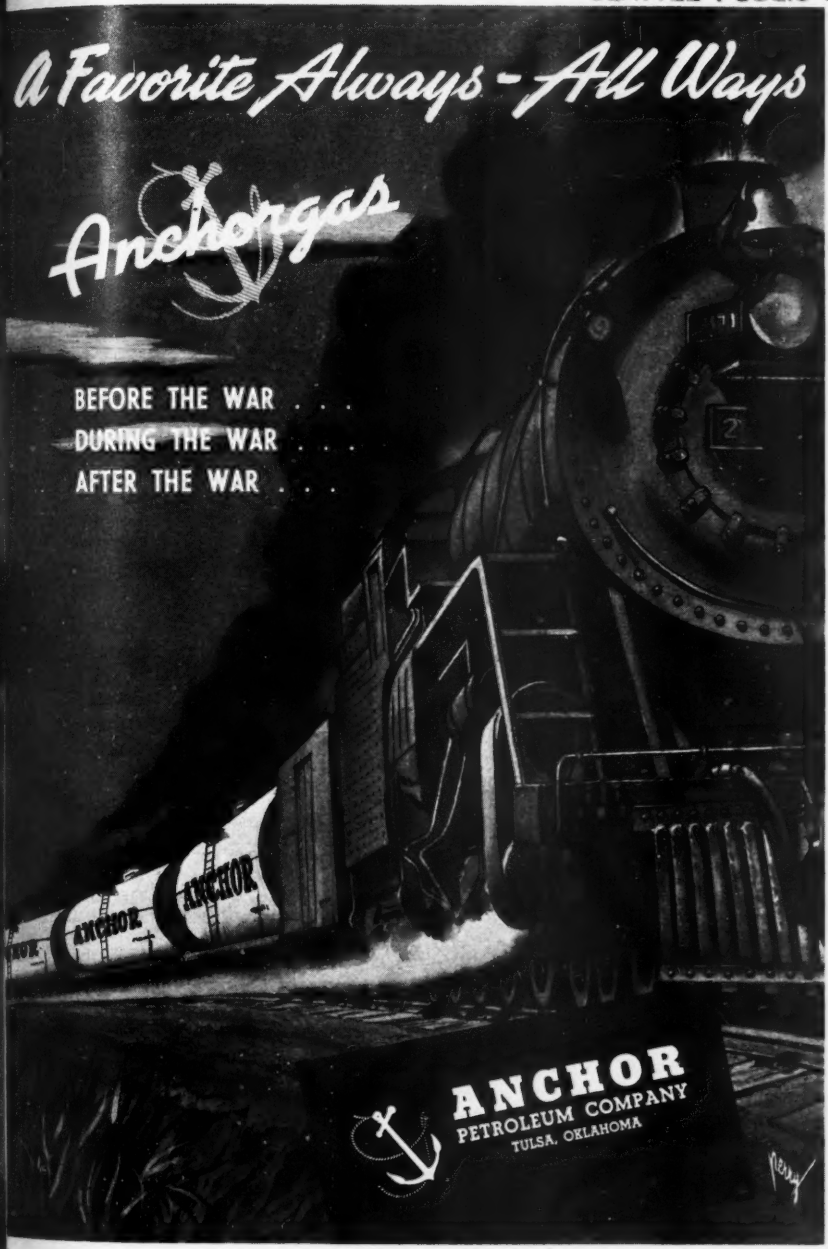

BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.

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LETTERS

• Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

•

Gentlemen:

We are experiencing considerable difficulty with leaks around the thread of the cylinder valve where it is inserted into the cylinder. We use a joint compound in making up this thread. In spite of the fact that the valve is tightened again after the leak is found, a leak will often continue to appear in this cylinder.

Have you any suggestions as to how these leaks may be stopped?

D. H.

Massachusetts

When leaks are found around the threads of cylinder valves which continue after being taken up, the cylinder should be emptied and the valve removed. The threads in the coupling should be thoroughly cleaned with a wire brush and solvent and inspected. It may be necessary to run a tap into the coupling to clean up burred threads. The valve should be similarly cleaned and inspected and if the threads are not in perfect shape a die should be run over them.

Before making up valve into tank, threads in the coupling and on the valve should be thoroughly cleaned so all cutting oil is removed. A small amount of thread compound should then be put on the valve threads only and the valve made up. This will eliminate leaks.—Ed.

•

Gentlemen:

In some correspondence dated last April you informed me that you would have a book released soon combining 24 chapters of operational details of LP-Gas industry problems. Would like to buy a copy of this book. Will you please send it C.O.D. or bill me after shipment?

We are contemplating going into the LP-Gas business, but are rather puzzled as to whether to use butane or propane. From what I read, butane is much cheaper to the consumer, but it seems that it will be harder to get after the war. Do you have any information on the subject? Thanks.

P. S.

Nebraska

Thank you for your letter of Aug. 4 in which you order a copy of "The Bottled Gas Manual." We have been very much delayed in the publishing of this book because of shortage of paper and manpower shortage at the printing plants, and it may yet be several months before it is ready for distribution. As soon as the book is published we will be very glad to send you a copy.

We have had a number of articles in BUTANE-PROPANE News this spring and summer in reference to the trend in the LP-Gas industry toward the use of high pressure storage containers. There is a very strong movement in the industry to fortify itself against possible future butane shortages by installing storage tanks and containers which will stand the higher pressure of propane, so that they may store and sell either butane or propane, whichever is most easily available.—Ed.

•

Gentlemen:

We are in desperate need of a butane tank and regulator for our gas range and refrigerator. We used them in Denver, which has natural gas, and then had to store them for two years. We have had them shipped here to Oregon now, where there is no natural gas.

We thought that you might know where we could obtain a tank.

D. W.

Oregon

According to our records the LP-Gas dealer located nearest to you is the "Gas Appliance Co." of Coquille. The name of the manager is

Mr. J. A. Moore, the mailing address is Post Office Box 306. There is also a dealer in Cottage Grove whose company operates under the name of "Cottage Grove Gas Co."

Your procedure should be to get in touch with one of these dealers and to ask that he file an application with the Petroleum Administration for War for permission to install a tank and needed equipment for your appliances. An industry order which covers new installations (L-86) makes provisions for obtaining equipment for those who have no other source of fuel supply.—Ed.

●

Gentlemen:

Would you please advise us as to where we could obtain the liquefied petroleum gas safety orders.

B. D.

California

I suggest that you write to the California Industrial Accident Commission at the California State Building in Los Angeles. This Commission formulates the state code governing the handling and storage of liquefied petroleum gas in California. The code prepared several years ago is now being revised and is not ready to distribute, but any particular facts you wanted to know would be supplied to you by letter, no doubt.

The California code and the codes of most states are based upon Pamphlet No. 58 of the National Board of Fire Underwriters. A copy of this code book can be obtained by writing to the National Board of Fire Underwriters at the Merchant Exchange Building, San Francisco. For interstate shipment, the Interstate Commerce Commission rules must be followed.—Ed.

●

Gentlemen:

Can you give any information to where we as dealers can get new tanks to hold the gas; also how to get them under government regulations.

H. S

Pennsylvania

Under Limitation Order L-86, you may apply for permission to obtain and install tanks upon application Form WPB-809. This is the form upon which you ask for an exception to the general order and set out your reasons for needing equipment.

This application should be sent to the Petroleum Administration for War Office in Washington, D. C., unless there is an office closer to you of which you know.

When such an order has been provided, you can obtain new tanks under it.—Ed.

Gentlemen:

We have a job going in a hospital and would like to know the danger of running a piece of ⅜-in. steel tubing that touches a steam line in running through a 12-in. concrete wall.

Would the high heat to which this particular stretch might be exposed cause an undue amount of rust that might weaken this section, or would the high heat have any tendency to increase the amount of pressure in the line beyond the 5-oz. that the regulator allows for?

S. B.

North Carolina

We assume that the steam line to which you refer is insulated. In such an event contact with this pipe for the distance of one foot will cause no particular trouble.

However, it always is good practice to keep all pipe—steam, gas or water—separated enough so that easy access can be made to anyone for repairs without interference from the others.—Ed.

●

Gentlemen:

This is to inquire whether or not you have published a book on the handling, storage and transportation of butadiene.

If so, will you please advise the writer, including the cost of the book?

M.S.

Pennsylvania

Because butadiene is a critical war product, very little information is available upon the uses that have been made of it so far.

However, in the October, 1942, issue of the "Petroleum Refiner", Houston, Texas, appeared an article entitled "Storage and Handling of Butadiene."

I also suggest that you address a letter to the Office of the Rubber Director in Washington, D. C., and it is possible you may obtain information there that is not for general circulation.—Ed.

● **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

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We also need mountains of Food, millions of
of Fuel, and hundreds of thousands of vehicles
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H. C. PITTMAN

Guest Editor for September

Mistakes

By H. C. PITTMAN

Chairman, Southern Section, LPGA, and president, Automatic Gas Co., Inc., Tyler, Texas

Forgetting the importance of eye appeal is one of the mistakes made by most LP-Gas dealers.

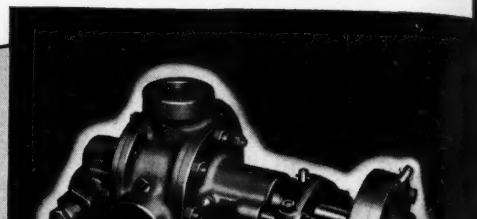
The state of your business is likely to be mirrored in the appearance of your showroom and office. Drive into any town in the United States, find a butane or propane dealer whose office and display room is neat, clean, well lighted at night, with short, attractive signs on the building, with well kept yard and front, and you will know that dealer is successful. Find a dealer's place run down, ratty, and shabbily kept from front to back and most likely his sales and business are thereby reflected.

Many dealers make the mistake of not selling the best in appliances. Handle only such appliances as are manufactured for the LP-Gas industry and of the best quality. Sell them at a reasonable profit. Check your customers' systems regularly every month. Do these things and success will not fail you.

Build your organization on Service First. Departmentalize your business. Hire the best man available for every department and pay him above average salary. The service department, installation department, fuel service department and bookkeeping department are the most important. Have for your motto, "My customer must be satisfied."

From observation I note that, in neglecting most of the above suggestions, dealers make their most costly mistakes.

Users report Millions of Gallons Pumped...



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MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

Organization Need

We extend our cordial best wishes to the organizers and to the 74 active and associate members of the newly organized Texas Butane Dealers Association. Elmer L. Atkins, of Fort Worth, is the president and Gus J. Moos, of Austin, secretary and treasurer of the group.

ELLIOTT TAYLOR

There is no doubt about it, regional associations or trade groups can accomplish much for their membership in the way of handling particular local problems that cannot be adequately cared for by a national body.

Whether or not the Texas group has plans to affiliate in some way with the LPGA we do not know; we observe that only six of its 65 active members whose names have been published are to be found on the latest roster of the national association. But if there were 65 dealers in Texas who were ready and willing to join a local association, we wonder why only six of them were members of the LPGA. We wonder, for instance, whether the 59 non-members were ever even invited to join the LPGA; and if they were invited, we wonder whether and inducements or advantages in membership were ever pointed out to them.

We are firmly convinced that the greatest good to the greatest number in the LP-Gas industry can be accomplished by a strong national association, with which all regional, state and local groups can be affiliated, but whose members may or may not be members of local or regional groups. We believe that the active direction of association affairs should be in the hands of those members who are distributors of and dealers in propane and butane; and we do not believe that this direction should ever be turned back into the hands of the producers of LP-Gas or the manufacturers of gas appliances and equipment. Such an organization should be in close cooperation with the natural gas industry as represented by the American Gas Association; but it should not allow itself to be dominated by the gas utilities, nor should it lose its identity in the AGA.

New dealer groups spring up at various times and in various

places. Some of them develop into permanent associations, others disintegrate as the first fine burst of enthusiasm fades under the withering necessity for hard work. But whether they stand or fall, survive or perish, their very inception indicates a basic need for some sort of organized activity within the ranks of the liquefied petroleum gas industry that does not at present exist.

Commendable Campaign

In the little over two months that have elapsed since George A. Burrell, of Atlantic States Gas Co., took over the responsibilities of chairman of the Safety Committee of the Liquefied Petroleum Gas Association, more has been done to focus the attention of the whole industry on safety than in any two months —or two years for that matter —since the association was organized.

We do not mean in any way to discount the conscientious work that has been done by previous committees on safety, the value of which has been cumulative and has prepared the ground of industry opinion for the acceptance of safety suggestions. But it has remained for Col. Burrell to take the whole subject out of the field of academic discussion and into the practical workaday consciousness of the rank and file of the industry and its employees. This he was able to accomplish through the simplest expedient in the world—that of outlining what was and is already being done in his own organization. For Atlantic States management has long since recognized that the practice of safety in the final analysis, can only be as effective as the rank and file of the company, the men who handle the tanks and the gas, and who operate the bulk stations and the delivery equipment, make it.

Thus the procedure recommended to the industry as a starting point consisted of organizing company safety committees of the men who do the manual work of the industry—organizing them and arousing their enthusiasm. At Atlantic States it is done by a series of rewards, in cash, and in prominent recognition of outstanding records. Thus the two basic principles as enunciated by Col. Burrell are carried out: "The men in the ranks should constitute the committees and they should receive some monetary reward for their effort."

The second step recommended to the industry consists of the holding of safety meetings in various sections of the country, these meetings to be organized and directed by the sectional chairmen. There are presently four sections of the LPGA—Eastern, Midwest, Southern and Pacific Coast. It is recommended by the committee that smaller subdivisions be considered so that more meetings can be held, and the expense and time of too lengthy travel eliminated.

The present scheme is to hold meetings periodically, lasting a full day and attended by the safety committee representatives of the various participating companies.

The entire program to date wins our enthusiastic approval, and merits the full cooperation and support of the members of the association. But to be effective as an instrument of industry advancement it must be recognized by the officers of LPGA that a safety campaign cannot be confined to the membership of that organization. In fact, taken by and at large it is the propane and butane dealers who are not members of any association that need the safety education most of all. The operator whose staff is too small to be divided up into committees is probably as uneducated in the fundamentals of safety as are any of his hired hands.

Thus we believe that the entire educational program of the LPGA on safety matters should be thrown open to the entire industry regardless of whether or not the recipients of its benefits are paying dues into association coffers. If regional meetings are to be held, as great or greater effort should be made to bring in non-members as is expended to assemble those who regularly participate in organization activities. If booklets or shop posters are distributed they should be sent to every LP-Gas operator whose name is on the association's mailing list.

We are well aware that there is an element of opinion in association circles that holds that no benefits of association activities should accrue to any save those who pay their annual dues to support the organization. There are association benefits that should in all fairness be confined to those who make those benefits possible through their financial support. But the receipt of safety information is not in that category.

Every single accident that happens in the handling of LP-Gas does some measure of damage to the entire industry. Every mishap costs something to every distributor and dealer, however remote he may think himself to be from the bad effects. Would the electrical competition allow the LP-Gas man to explain away an accident on the grounds that the dealer was not a member of the LPGA, or that he was handling only propane or that the incident took place in Sullivan county? As far as the public is concerned bottled gas is all one fuel; what happens one place can happen another—and probably will.

The Safety committee under Col. Burrell is presently making a contribution toward the improvement of standards of practice that can have far reaching and beneficial effects throughout the industry. The light that they have kindled should not be hid under the LPGA bushel.

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PROPANE and BUTANE

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LP-Gas Burner Design

Burner Ports, Flame Characteristics, Mixing Tubes

By F. E. VANDAVEER

Assistant Director, American Gas Association Testing Laboratories, Cleveland, Ohio

RESEARCH on atmospheric gas burners has represented a major portion of assignments made by the American Gas Association Committee on Domestic Gas Research to the A.G.A. Testing Laboratories from the time its program of fundamental research was undertaken. The first publication on this subject was issued as Bulletin No. 10, "Research in Fundamentals of Atmospheric Gas Burner Design," in 1940. Bulletin No. 13, "Fundamentals of Design of Atmospheric Gas Burner Ports," followed in 1942. Bulletin No. 16, "Relation of Burner Volume to Ignition and Extinction Characteristics of Gas Range Top Burners," was published in 1943. Bulletin No. 20, "Gas Burners Utilizing All Air for Combustion as Primary Air," and Bulletin No. 22, "Primary Air Control Devices for Atmospheric Gas Burners," the fourth and fifth of the series were issued in February and March of this year. Other research projects on burners are being diligently studied with results, some of which are well advanced, to be published at a later date. They include:

F. E. VANDAVEER

1. Further investigation of 100% primary air burners.
2. Mixing tube design.
3. Small tubular burners with combustion taking place inside the tube.
4. Burners utilizing no primary air, producing non-luminous short blue flames.
5. Principles for designing improved luminous flame domestic burners.

ABSTRACT

Following a general resume of American Gas Association research on atmospheric gas burners including published bulletins and current projects, the most important items of burner port design relating to liquefied petroleum gases are presented. Effect of drilled port size, port depth, port spacing, ribbon and slotted ports and fuel gases on burner performance as well as a new formula for calculating flow of air-gas mixture through ports is given. New mathematical formulae for calculating flame characteristics of inner cone and outer mantle flame height are discussed. Port design to prevent flash-back is summarized. Generally accepted dimensional limits for mixing tube design for good primary air injection as well as some interesting research in new directions are briefly reviewed.

THROUGHOUT all burner investigations of the AGA Testing Laboratories the primary objective has been to establish fundamentals of burner design which may be most generally and widely useful to designers, engineers and manufacturers of gas appliances. Having established these basic fundamentals, they may be usefully applied to the many thousands of types of burners now being designed and manufactured. Contemporary burners, such as are shown in Figs. 1 and 1-a, vary in size from a single port pilot burner a fraction of an inch in diameter and con-

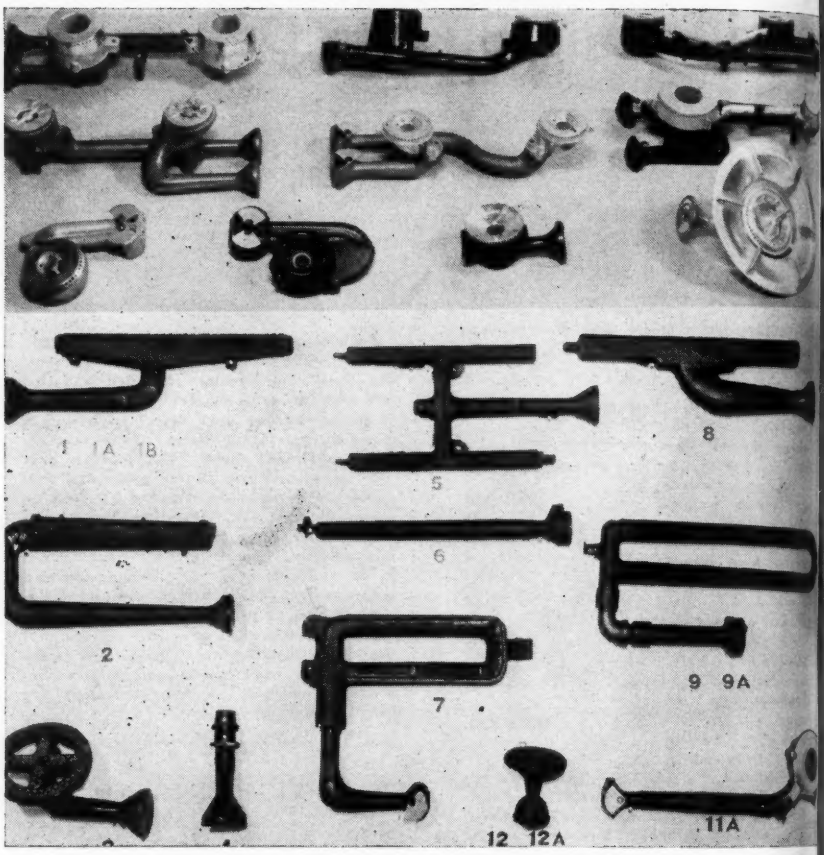


Fig. 1.—Illustrating some contemporary atmospheric gas burners.

suming little more than 100 Btu. per hr. to multiport burners several feet long and consuming tens of thousands of Btu. per hr. They are made in nearly every conceivable shape fitted to the particular heating job to be done. They perform efficiently such varied tasks as top burner cooking, broiling, baking, water heating, central and space heating, refrigeration, ironing, clothes drying, summer air conditioning and many others.

In the development of these fundamentals of burner design it is necessary to employ fuel gases representative of the many gases on which atmospheric burners are required to operate. Among these are the liquefied petroleum gases propane and butane, distributed either as bottled gas or mixed with

air to the desired heating value. In some situations they are used as auxiliary standby gases for city gas supplies. Variations in heating value, specific gravity and distribution pressure for the liquefied petroleum gases as well as for extremes of natural and manufactured gases are illustrated in Fig. 2. It will be apparent from Fig. 2 that the three gases, namely, coke oven, natural, and butane used during our research work on burners represent the extremes of heating

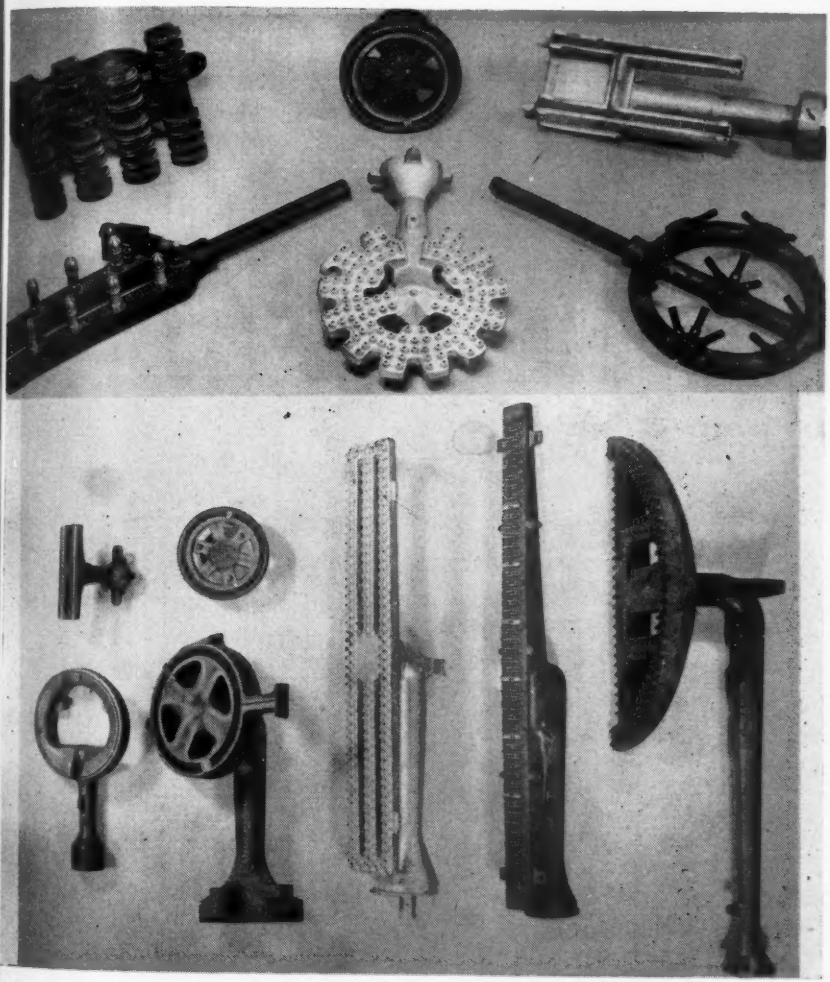


Fig. 1-a.—Illustrating some contemporary atmospheric gas burners.

Fig. 2.—Comparison of physical properties of typical flue gases which affect burner design.

values, specific gravities, distribution pressure, and air required for complete combustion per cubic foot of gas, of all the fuel gases normally distributed in this country.

Many Have Contributed

The technique of advancing atmospheric liquefied petroleum gas burner design is not confined to any single agency or to any one method. Notable contributions have been made by the National Bureau of Standards, U. S. Bureau of Mines, appliance manufacturers, liquefied petroleum gas producers and distributors, and others. A particularly effective method has been the gradual raising of American Standard approval requirements with which over 95% of all appliances sold in recent years comply. Many manufacturers have made improvements in burner design in order to meet these standards. In this activity the Liquefied Petroleum Gas Association and the Compressed Gas Manufacturers Association have participated through their representatives acting on various approval requirements committees.

Phases of the technique of advancing atmospheric gas burner design relating to burner ports, flame characteristics, and mixing tubes will now be presented in order.

Burner Ports. Like other fundamentals of burner construction, many of those relating to burner ports are more or less generally recognized. It has been considered, for example, that flame characteristics are affected by the form of the port whether drilled, slotted, ribbon, raised, or flat; by port size, depth, spacing and number of rows; by burner head temperature; and by air-gas mixture temperature. Different fuel gases may also require different treatment of ports. Until recently information which will enable the designer to evaluate quantitatively all of these inter-related variables has not only been difficult to find, but in some instances, has not been available. Bulletin No. 13 provides such information. Based on thousands of tests and innumerable calculations, results are presented on port sizes ranging from No. 60 D.M.S. (drill manufacturer's size) to ½ in. diameter, port depths of ¾ in. to less than 1/16 in., raised port diameters from 5/32 to ⅜ in., raised port heights from 0 to ½ in., port spacings from 1/16 to 1 in., 1 to 4 rows of ports and slotted and ribbon port forms. Some of the burner head plates used in determining influence of these variables are shown in Fig. 3.

To measure limits of satisfactory burner port performance, two definite flame characteristics were used, namely, the lifting limit and the yellow tip limit.

Lifting Limit Described

The lifting limit may be defined as that point at which the flame of a single port burner starts to leave the port or where several flames start to lift from a multiport burner. It is usually expressed in percentage of primary air at which lifting occurs for a given set of conditions.

The yellow tip limit is that point at which a yellow tip appears in the

flame or just disappears with change in primary air. Lifting is a sign of too much primary air while appearance of yellow tips indicates too little primary air. Both are to be avoided in usual atmospheric burners.

Typical curves are shown in Fig. 4 for butane and propane gas with No. 36 D.M.S. ports, and for butane with a ¼ in. diameter port. Good burner port design should fall well above the yellow tip curves and below the lifting limit curves. For example, a burner designed for 12,500 Btu. per hr. per sq. in. of port area and No. 36 D.M.S. ports would accommodate a primary air variation from 35 to 76% for butane gas and from 30 to 80% for propane gas between the yellow tip and lifting limits.

These curves clearly illustrate the greater flexibility in operation of burners designed for a low Btu. input per square inch of port area over those having high input per unit of port area. Optimum operation would be obtained at inputs from 10,000 to 15,000 Btu. per sq. in. of port area. It will also be noted that the lifting and yellow tip limits for propane and butane are reasonably close together, showing that one burner may be used for both gases.

Effects of increasing the diameter of burner ports is also shown in Fig. 4. When ¼ in. diameter ports are used, both lifting and yellow tip limits for butane are displaced upward to 87 and 58% primary air at 12,500 Btu. per hr. input. This clearly shows that where

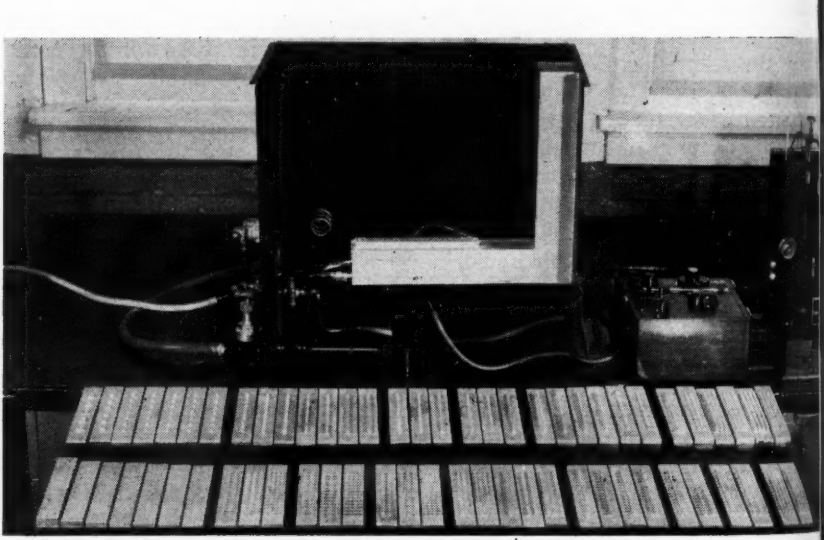


Fig. 3.—Illustrating burner and heater construction, background, and burner-head plates used for determining effect of number, size, depth, and spacing of ports, number of rows of ports, raised and plain ports on burner operating characteristics.

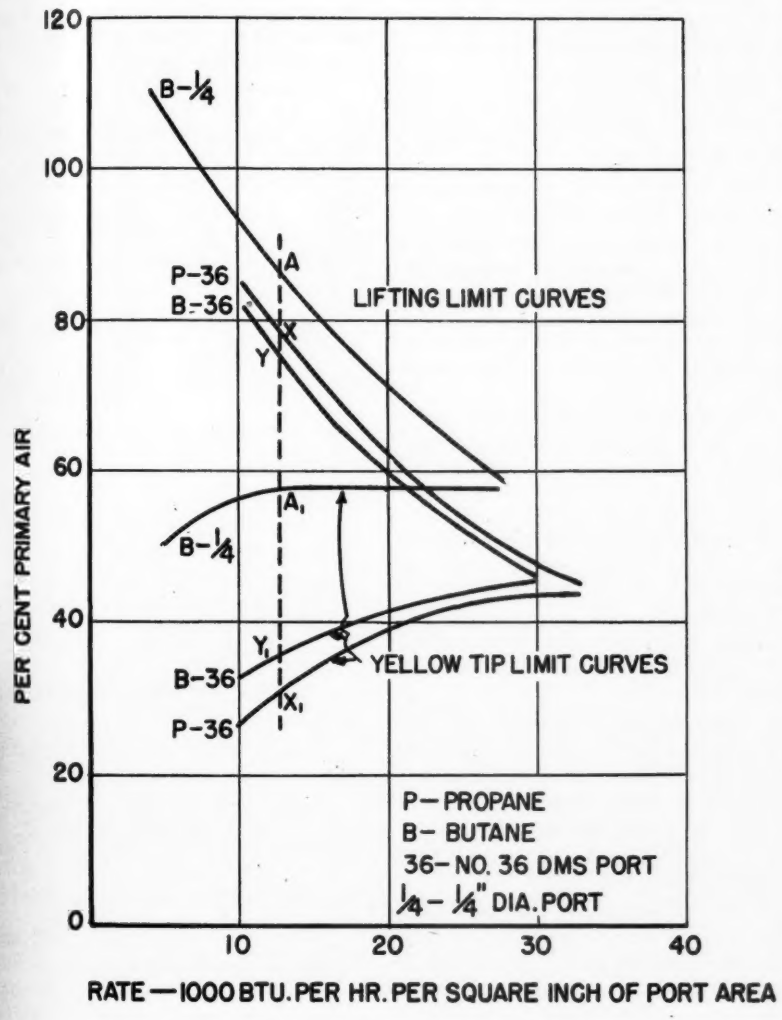


Fig. 4.—Typical lifting and yellow tip limit curves for propane and butane gas.

air injection falls off with burner turn-down large size ports would be undesirable because of yellow tip formation. Values for a wide range of port sizes are given in Bulletin No. 13 so that the designer need only to refer to these curves to determine how his burner meets these essential conditions.

Other significant results set forth in Bulletin No. 13 include:

1. The larger the port size, the higher the percentage of primary air which can be accommodated before lifting flames are encountered and the higher the percentage of primary air required to dispel yellow tip formation.

2. Increase in depth of port from 1/16 in. to 1/2 in. permitted higher percentage of primary air before lifting of flames occurred. Further increase in port depth had no appreciable effect. Depth of port did not influence the limit at which yellow tips appeared.

3. Neither variation in height nor diameter of raised port sections had any appreciable effect on lifting or yellow tip limits.

4. Distance between ports and increase in number of rows of ports had only a slight effect on lifting of flames. On spacings closer than 5/16 in. (edge to edge of port) yellow tip elimination required increasingly greater percentage of primary air.

5. Ribbon ports will accommodate more primary air before lifting, but will also require more air to dispel yellow tips than normal size drilled port burners. To illustrate, on butane gas with No. 46 D.M.S. ports at 12,500 Btu. per hr. per sq. in., primary air could be varied from approximately 18 to 64% between yellow tip and lifting limits whereas on similar sized slots it could be varied between 6[illegible] and 104%.

6. Slotted ports of a width equal to the diameter of drilled ports will operate satisfactorily at both higher lifting and yellow tip limits than the drilled ports. In this respect, a slotted port of a width equal to No. 56 D.M.S. drill compares favorably with a No. 26 D.M.S. drilled port.

7. Flow of gas-air mixture through burner ports can now be calculated more accurately than previously as a result of development of a new equation:

$$\text{New } Q = 1658.5 \; K \left(\frac{p}{d}\right)^{n}$$

$$\left(\text{Old } Q = 1658.5 \; K \sqrt{\frac{p}{d}}\right)$$

Where:

Q = air-gas flow in ft. per hr. per unit of port area.

1658.5 = conversion factor to put all terms on equal basis.

K = coefficient of burner port discharge.

p = burner head pressure, inches of water.

d = specific gravity of air-gas mixture (air = 1).

n = slope of line as plotted in Fig. 62, Bulletin No. 13.

Part 2 of this article will appear in the October issue of Butane-Propane News. It will discuss flame characteristics, height of inner cone, height of outer mantle of flame, flash-back and mixing tubes. Subject matter will be accompanied by photographs and graphs.

State Administration of LP-Gas Subject of Southern Section Meeting

J. W. MARTIN

P. K. THOMPSON

WHEN the Southern Section of the LPGA meets in New Orleans on Sept. 11-12 one of the principal topics for discussion will be the state administration of the LP-Gas industry. This will take the form of roundtable questions and answers in which members will report upon what their respective states are now doing to regulate the operations of LP-Gas operators and what can be done to properly influence future legislation in fairness to the industry.

J. Woodward Martin, Lone Star Gas Co., will act as moderator for this session.

Speakers and topics tentatively arranged for the balance of the two-day program include Paul K. Thompson, chief of the LP-Gas Section, PAW, on current government orders; Col. Geo. A. Burrell, "Safety in the LP-Gas Industry"; Seward Abbott, "Gas Refrigeration"; Frier McCollister, "Facts and Figures on Publicity"; E. Carl Sorby, "Targets for Tomorrow"; and Ellsworth L. Mills, "The Postwar LP-Gas Industry."

"Flight Log," a highly entertaining motion picture which was shown at the June meeting of the Midwest Section in Denver by the Shell Oil Co., Inc., will be presented at the close of the first day's session.

Reservations Must Be Made Early

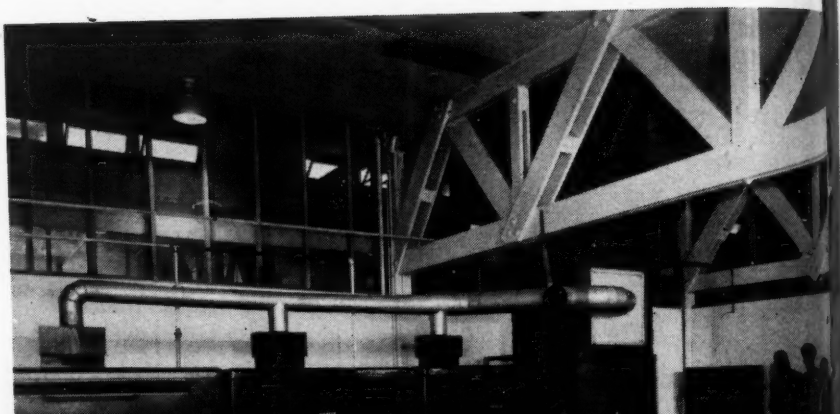
Selwyn Turner, of the National Butane Co. of Alabama, is program chairman of the Southern meeting. He urges all who expect to attend to make reservations well in advance. These should be filed with Sam Fowlkes, secretary of the Housing Bureau, P.O. Box 1460, New Orleans 5.

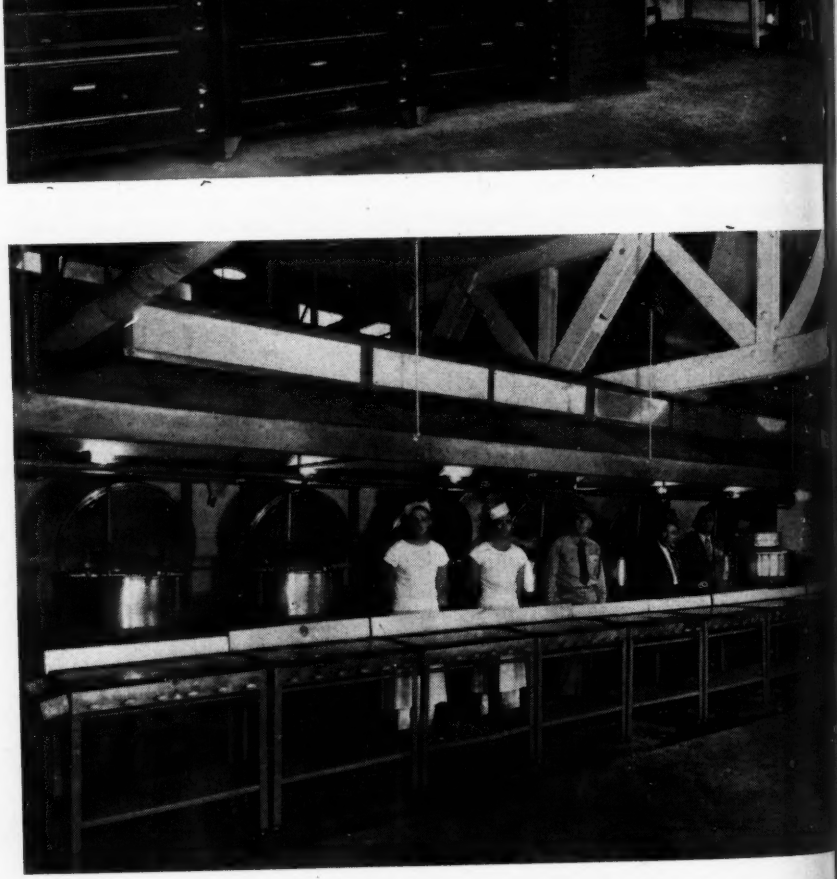
H. C. Pittman, chairman of the Southern Section, will open the meeting and he and Mr. Turner, W. C. Christopher and B. T. Harris, vice chairmen, will preside at the various sessions. J. R. Herrin, Jr., is secretary of the group and Chas. W. Guy is the second member of the program committee.

Luncheon meetings will be held on each day of the convention, which will be held at the Roosevelt hotel.

E. L. MILLS

J. R. HERRIN, JR.





20-Cylinder Gas Installation Serves Naval Air Station

By SAMUEL KAPNEK

Natural Gas Co. of New Jersey, Hammonton, N. J.

TWENTY 100-lb. cylinders of propane are supplying fast, efficient service whereby 3400 of Uncle Sam's men are daily receiving ample quotas of the foods the government provides for them at the Naval Air Station, Pomona, N. J., and the entire personnel of the station has expressed itself as delighted with the fuel and the service rendered by our company.

All of the baking and cooking for the men at the air station is done in the ovens and on the plates which use propane and a far greater efficiency has been thereby attained than with the coal equipment which was used formerly. Steam kettles and gas toasters are also used.

The system is metered and automatically controlled. When one group of tanks empties, the second group becomes active. We service the equipment semi-monthly and bills are rendered to the government for the amount of gas consumed.

Michael J. Murrin, supervisor in the Pomona area, is responsible for the installation and for the sale of all appliances. He also helped design the kitchen arrangement.

OPPOSITE PAGE: Baking ovens (above), roasting and frying equipment, with steam kettles at Pomona (N. J.) Naval Air Station. Below—Michael J. Murrin and Samuel Kapnek beside 20-cylinder installation.

Vaporizer Solves Turkey Brooder Problem

By DON H. SLOCUM

LP-Gas Sales Manager, Multnomah Fuel Co., Portland, Oregon

DEALERS in the LP-Gas industry are ever on the alert to find ways and means of adding to the efficiencies of their installations and of increasing gas capacities. Therefore it may be of interest to hear how we solved a problem of limited vaporization.

DON SLOCUM

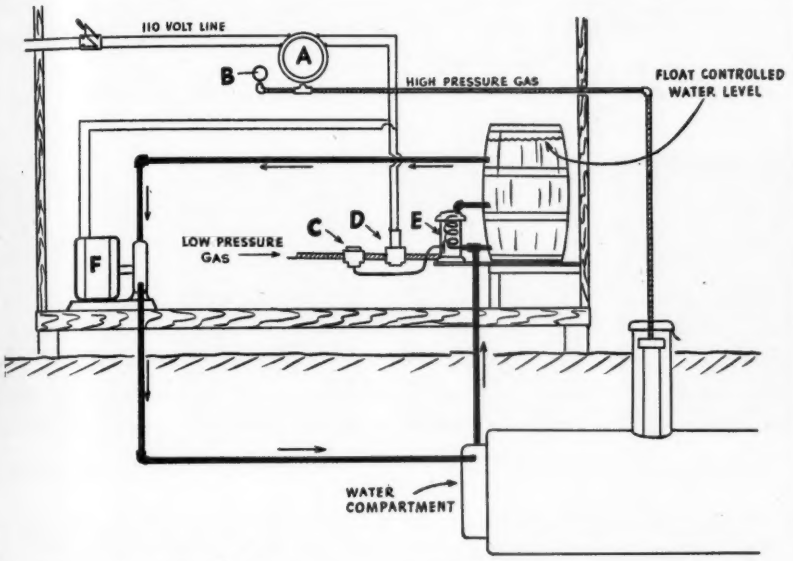
A couple years back, we installed a 300-gallon "Hydrogas" butane system at the H. S. Fenton Turkey Farm, Orchards, Wash., as a source of gas supply for the operation of 18 turkey brooders and a picking kettle.

After the first brooding season, the owner added a dozen more 72-in. brooders and installed a 45,000 Btu. Payne Console in his home to supplant a worn out piece of oil burning equipment.

This added gas load led to trouble as soon as the brooders began operation, due to the refrigerating effect of overly rapid vaporization, with a consequent dropping to inoperative gas pressures within the storage system.

The difficulty was overcome by automatically circulating heated water, also automatic, through the built-in water vaporizer. The pressure gage was removed from the "Rego" compact head and from this opening ⅛-in. pipe was led to a Mercoid pressure switch. The switch settings were adjusted to

One-fourth of the H. S. Fenton flock of turkeys at Orchards, Wash., raised by LP-Gas brooders installed by Multnomah Fuel Co., Portland, Ore.



Vaporizing System and Costs

A = Mercoid Pressure switch	$ 9.50
B = Pressure gage (from Rego compact head)	5.80
C = General MR-2, 100% valve for pilot	4.80
D = Mercoid solenoid valve-main gas burner	8.50
E = Sidearm water heater	16.50
F = Motor direct connected water pump	35.06
	$80.16

12 lb. minimum and 35 lb. maximum. Ahead of a solenoid valve in the water heater gas line to main burner we placed a General MR-2 100% safety valve held open by pilot and thermocouple. The solenoid valve and the motor (pump) were hooked in multiple.

The cost of all necessary parts was only about $80 and the results of holding tank pressures up to an average minimum of 25 lb. made it possible to use all the gas required for complete comfort in the home and to brood upward of 10,000 turkey poults at a brooding cost of just over 2 cents per bird.

Where we had previously found it necessary to refill this tank by the time the liquid level was down 40% (with tank pressures down to 2 or 3 lbs.) we were able, after the described installation, to allow the tank to become practically empty and yet note that pressures, rarely ever below 25 lb. were maintained.

This solved two problems for us. It obviated the necessity of obtaining additional tankage (which would have been almost impossible under existing shortages) to meet the extended demand, and it cut in half the number of deliveries for our truck. So we and our customer profited appreciably.

Safety is Convention Theme Of Pacific Coast Section Meet

D. D. PURRINGTON

L. C. RONEY

T. RANSOME

A. A. BEWLEY

SAFETY, uppermost subject in the minds of liquefied petroleum gas men everywhere, was the principal topic of discussion at the meeting of the Pacific Coast Section, LPGA, in Fresno, Calif., on Aug. 28.

Emphasizing that care in handling products and safeguards against fires and accidents are industry obligations, members expressed themselves as believing that a campaign of education must be insistent and continuous.

The program that is under way by Col. Geo. A. Burrell, chairman of the safety committee of the national association, was heartily endorsed. Sectional Chairman L. C. Roney is also chairman of the Pacific Coast safety committee, appointed by Col. Burrell. Mr. Roney appointed industry members to serve on this committee and instigated plans which it is hoped will carry the safety message to every dealer organization in the West.

Among those who talked on safety were Walter Thrall, Reliance Regulator Corp.; Tallent Ransome, Ransome Co.; Dave Purrington, Standard Oil Co. of Calif., and A. A. Bewley, California Butane Co., and secretary of the Pacific Coast Section.

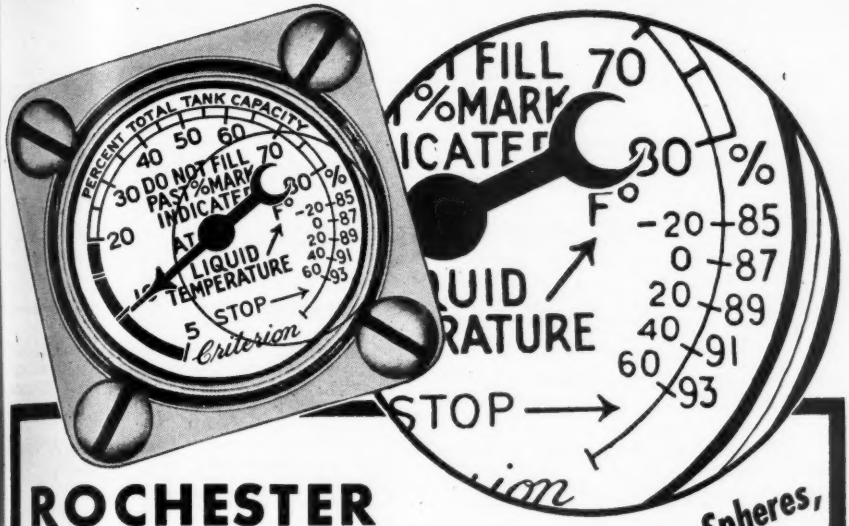
New by-laws of the national association, current problems of fuel supply and postwar selling were discussed.

The session was limited to one day and was held at the Hotel Californian.

Production Quotas for Boilers, Tanks, Set by WPB

Production quotas for range boilers, expansion tanks and hot water storage tanks have been set for the period from June 2, 1944, through December 31, 1944, the War Production Board has announced.

The newly revised order provides that production for the seven-month period from June 2 to December 31, 1944, shall be 7/12 of the quota provided for each calendar year. Each manufacturer's calendar year production of range boilers and expansion tanks is limited to 70 per cent of his unit output during 1941, while production of hot water storage tanks is permitted each maker at the rate of 75 per cent of his 1941 unit output.



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Rochester Magnetic Gauges—Pressure—tight, safe and convenient, are available for all types of tanks storing LP Gas. Deliveries down to three (3) weeks on Priority Ratings currently assigned to LP Gas equipment.

Enlarged portion of Rochester gauge dial, illustrated, shows maximum safe filling level markings as recommended by Underwriters as a safeguard against over-filling.

When gauge problems arise, don't take chances. Write us fully stating tank shape, size and all other factors for complete recommendations by return mail. There is no obligation.

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Commercial Cooking

By C. C. TURNER

Special Representative,
Butane-Propane News

LET us start our discussion of commercial applications of LP-Gas with the nearest eating establishment, not because the cooking of foods is the simplest task, for it isn't, but because it is the first step for LP-Gases into the commercial and industrial field and also the most familiar one to us. One hundred and thirty-five-odd million of us manage to get in three square meals a day. We may eat them at home, in Louie's One-Arm Lunch, in a fashionable hotel, or wherever, but the processes are frying, baking, roasting, boiling, simmering, warming, freezing, or chilling in each instance of food preparation.

Commercial cooking is a highly specialized and competitive business, and many an operator has gone on the rocks by way of the garbage pail and overhead expense. Before we attempt talking with the proprietor of any eating establishment let us delve into what happens to each dollar taken in by him. Let us presume that his establishment is of fair size and located in the average American city of 100,000 population or less. A fair apportionment of every dollar "take," based upon records investigated, would be somewhat as follows:

	Cents
Food	42
Wages	24
Rent	8

THE FIELD for commercial and industrial applications of LP-Gas is vast. The demand of war industries for propane and butane have helped to awaken many dealers to the opportunities that exist now and that will exist later, but for most part the industry has neglected to capitalize upon these large, potential loads in numerous localities.

Mr. Turner, in the series of articles that began last month in BUTANE-PROPANE *News*, discusses applications in these broad fields. He will show where this business is to be had; how it can be obtained in competition with other fuels, and the proper kinds of installations to make. Those who followed Mr. Turner's series that ran in this magazine for more than 2½ years entitled "The Bottled Gas Manual" will look with keen anticipation to every forthcoming chapter.—Editor.

C. C. TURNER

Electric current for lights, air-conditioning, signs, fans, etc.	3
Advertising	1½
Menus	1
Office Supplies	1
Laundry	2
Replacements and repairs	2½
Cleaning supplies	1
Insurance and taxes	1
Ice water	½
Interest and depreciation	4
Miscellaneous expenses	2
Cooking fuel	1½
Profit	5

It does not require much study of the foregoing to conclude that here truly is a business in which pennies count. A high fuel bill may cause a slender profit to disappear, or a wasteful chef may turn it into a deficit. The possible causes of business failure are legion, and fuel may be a contributing factor to many of them, as we will later note.

Other Causes of Unprofitable Operation. The other headaches of the restaurateur may not be our direct concern, but in many cases we can be helpful to him in eliminating them. When our suggestions have to do with the chef we are treading upon dangerous ground, for chefs have a reputation of possessing that so-called "artistic temperament," and many a restaurant proprietor has been chased out of his own kitchen by one of this vocation wielding nothing less dangerous than a cleaver or a butcher knife. We shall have more to say on this subject before we venture into the chef's sanctum, which is the kitchen.

We can classify the ills from which an eating establishment may suffer, as follows:

A. Poor facilities for handling food.

B. Too great a variety upon the menu.

C. Too large portions.

D. Poor cooking.

E. Wrong way of trimming meats.

F. Over-stocking, with consequent food spoilage.

G. Conveying to the garbage pail materials having food value.

H. Wasteful use of fuel.

Types of Eating Establishments. Before intelligent recommendations can be made as to the quantity and type of equipment necessary for an eating establishment it is necessary to know the nature of its business. Eating establishments can be roughly grouped into eight classications which are as follows:

A. The sandwich bar.

B. The boarding house.

C. The cafeteria.

D. The diner, or lunch cart.

E. The lunch room.

F. The restaurant.

G. The dining room.

H. The night club.

Lines of demarcation between these classifications are not always distinct. Where the dividing line is discernible it is quite possible to determine what the equipment should be, for an establishment which serves sandwiches and soft drinks only, has needs far different from those of a modern hotel with its several dining rooms. Let us consider each type of eating place and its requirements.

The Sandwich Bar. For the purpose of this book a sandwich bar is that type of eating place which serves sandwiches, pies, cakes, and soft drinks, but does not sell regular meals, although many of them eventually work into this type of business. Sandwich bars are quite often a department of a drug store or a dime store, and hence, the space which would be used for baking equipment is more valuable for other purposes. As a result, the baked goods are purchased from commercial bakeries, and the spreads and meats are purchased in prepared form. The gas equipment needs for such an establishment are very limited, usually consisting of a hot plate, grill, toaster, coffee urn and water heater. If hot sandwiches are not served the hot plate and grill are not needed.

The Boarding House. The boarding house serves regular meals at regular hours and has no choice upon its menu. Usually such places serve all types of food and therefore have need for equipment which will take care of simmering, boiling, baking, roasting, and to a lesser extent, broiling and frying. The smaller boarding houses are not large enough to warrant the installation of commercial broilers or fryers, and in many instances a coffee urn is not needed but a coffee maker should be suggested. Large boarding houses, such as those which operate in connection with schools, need all of the equipment which is found in the kitchen of a modern hotel.

The Cafeteria. The cafeteria differs from the boarding house in that a choice of prepared foods is offered, the customer often waits upon himself, and the meal is available for several hours instead of being served at a specified time. For this reason the cooking equipment must have somewhat more capacity than that used in a boarding house in order to provide for the greater variety. A steam table is essential for such establishments, and either a coffee maker or coffee urn, depending upon the amount of business done.

The Diner, or Lunch Cart. This truly American institution has developed from the days when a horse-drawn vehicle moved from point to point in a city as the demand for something to eat varied throughout the day with the habits or routines of various districts. In those days it was often of questionable cleanliness but the modern diner or lunch cart is a model of cleanliness and efficiency, and many patrons like the idea of seeing their foodstuffs prepared. They serve millions of meals daily. Many of these establishments serve meals from regular menus in addition to doing short order cooking.

Bake ovens, roasting ovens, and large ranges are out of the question behind the counter because of lack of space. As a result, a modern kitchen is sometimes appended to the diner, and it vies in equipment with those possessed by the smaller hotels. Cooking equipment behind the counter must be compact and have great cooking capacity in proportion to its size. Behind-the-counter equipment usually consists of gas plates, griddles, one or more small deep fat fryers, hot water and coffee urns, steam table, toaster, egg boiler, and a warming oven for keeping dishes warm or for warming rolls. This oven is usually above the steam table and makes use of waste heat from it. The large input, small storage capacity gas-fired water heater is at its best in diner installations, for no other water heating medium can furnish as much hot water, occupy as little space, and require as little attention.

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The Lunch Room. The lunch room, like the diner, is usually open at all hours, and serves regular meals from menus as well as doing short order cooking. It requires facilities for baking, roasting, frying, simmering, boiling, and broiling. The equipment is similar to that used by the diner with the exception that it can usually be larger because of the space available.

The Restaurant. The average restaurant specializes in two or more special meal combinations for breakfast, lunch, and dinner. Short orders are accepted during regular meal hours although they are not encouraged, but in between peak hours they usually do considerable such business. The cooking equipment used is very similar to that of the lunch room excepting that restaurants are apt to do more baking of the pastries which they serve, and commercial bake ovens are frequently installed. They also usually have two or more units of commercial roasting ovens.

Dining Room. We refer to a dining room as found in the modern American hotel, and here commercial cookery is found at its best. Ranges, hot plates, grills, steam tables, broilers, bakers, toasters, warming closets, roasters, fryers, hot water urns and coffee urns are usually found in batteries of two or more, and many of the meals served are especially prepared to suit the individual tastes of the customers. Frequently two or more complete kitchens will be installed in order to take care of the various activities which center around a hotel at different hours. This is necessary because peak load conditions such as are imposed by banquets would otherwise disrupt the orderly service of the regular hotel dining room.

The quantity of equipment depends largely on the dollar volume of business and the type of meals served. By way of example, a hotel located at the seashore in the state of Maine would need more broiler and fryer

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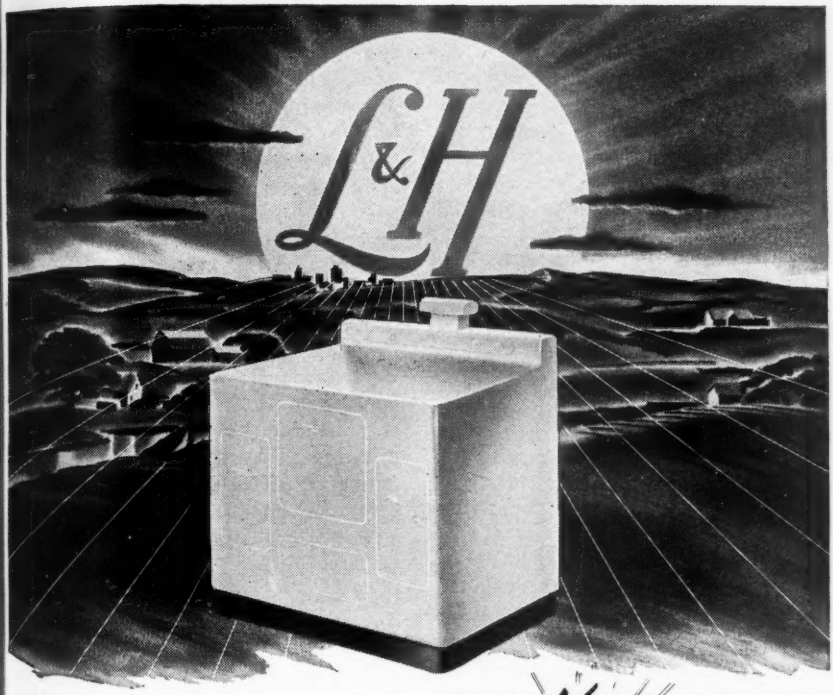
Detroit-Michigan Stove Co.'s restaurant range. Battery arrangement (left to right): Open top attachment; hot top range; fry top range.

▼



L & H WILL BE READY *when Victory comes*

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KEROGAS MANUFACTURERS OF ELECTRIC RANGES ELECTRIC WATER HEATERS GAS RANGES.. OIL STOVES.. PORTABLE OVENS OIL HEATERS...WICKS ALCAZAR

capacity than a hotel in Chicago because of the large percentage of orders for broiled lobster or fried clams.

The Night Club. These establishments are divided into two groups, the more numerous of which is that type which emphasizes the sale of drinks but will sell you a sandwich if you insist. Their needs can usually be handled by hot plate and grill equipment and possibly a coffee maker or coffee urn. The second group serves full course dinners and encourages the drink feature only to the extent to which it may be indulged in by patrons in connection with a meal. The nature of equipment needed by such places very closely approximates that of the hotel excepting that more equipment is needed for top-of-the-stove cooking methods in order to take care of the larger percentage of short orders in which they deal.

A Word About Water Heating. Regulations pertaining to the washing and sterilizing of dishes as well as those having to do with the general cleanliness of public places are becoming more rigorous, and eating establishments have need of plenty of water that is scalding hot. It is not my intention to make further mention of this subject in this book, but it is a matter which you should keep prominently in mind, for no other method of heating water quickly in large quantities at nominal cost can approach the quick recovery, gas-fired, storage water heater.

Gas Equipment—How Much? We can determine with almost scientific accuracy the type and quantity of cooking equipment which each eating establishment should have. Our first job is to determine which one of the classifications just described is most appropriate for the job being surveyed. Our next step is to study the menus for some time past. If possible these should be selected at random over a period of a year, the reason being that the supply of cheap foods in season have a bearing upon what is served; hence, an effect upon the type and quantity of cooking equipment required at such times.

An example is found in the fluctuation in business at so-called "oyster bars" which suffer a sharp decline in their oyster business in certain months due to the popular misconception that oysters are not fit food in months which do not have the letter "R" in them.

Following our analysis of menus, we should ask the proprietor what the gross "take" in dollars per day averages; also, what is the average number of customers served per day. This will serve in a measure to tell us what is the price of the average meal and of what it consists. Caution—if the establishment is of the lunch room type the meal price will be above this average price on account of the orders which consist only of coffee and doughnuts. An example of this is the serving of three regular meals at 60c each and three orders of coffee and doughnuts at 15c each. Averaging the six orders would give us 37½c each which would throw us off on our estimate of the quantity and type of equipment needed if we did not make allowance for this fact.

If the business is of a seasonal nature, as at a summer resort, we must arrive at an average per day for the active season rather

than at the average per day over a period of a year. If peak loads are more than infrequent, allowance will have to be made for this condition, but we must bear in mind that idle equipment at other times eats into profits in the way of interest on investment and depreciation.

The following list of necessary equipment, based upon the average gross daily receipts, will help us in determining approximately the amount of gas equipment which an eating establishment can afford, but it should not be taken as something which is inflexible, and it should be modified in accordance with the needs peculiar to each job surveyed.

Gas Equipment for Eating Establishments Taking in Less Than $50 per Day

Two- or three-burner gas plate. May be the top burners of a domestic range.
Small griddle plate.
Small refrigerator of the domestic type.
Slow recovery water heater with 30 gals. storage.
Oven. May be that of a domestic range.
Broiler. May be the broiler of a domestic range.
Coffee maker of the Silex type.

Gas Equipment for Establishments Taking in from $50 to $100 per Day

Four-burner hot plate. May be the top burners of a small commercial range.
Griddle plate of approximately 16 in. x 24 in. size
Oven. May be the oven of a small commercial range.
Broiler. May be a small separate unit or one such as is sometimes included in the assembly of a small commercial range.
Medium size domestic refrigerator.
Medium recovery water heater with 30 to 40 gals. storage.
Large coffee maker or small coffee urn.
Small gas toaster.
Waffle iron.
Small Steam Table.

Gas Equipment for Establishments Taking in from $100 to $200 per Day

Four to six open top burners.
One section of closed top range.
Medium size griddle plate.
Two ovens. May be those of two sections of commercial ranges.
Medium size broiler.
Fast recovery water heater with 40 gals. storage.
Medium size coffee urn.
Medium size water urn.
Candy stove. (For stock kettles.)
Large size domestic refrigerator.
Medium size steam table.
Medium size toaster.
Waffle iron.
Deep fat fryer.
Roll warmer.
Dish warmer. May be the closed in section beneath the steam table.

Gas Equipment for Establishments Taking in from $200 to $300 per Day

Two sections of open top ranges.
One section of closed top range.
Large size griddle plate.
Three section commercial bake oven.
Two- or three-section commercial roasting oven.
Large size broiler.
Fast recovery water heater with 60 gals., or more, storage capacity.
Large size coffee urn.
Large size water urn.
Two or three candy stoves.
One large steam table or two medium size steam tables.
Large toaster.
Two or three section waffle iron.
One or two medium size deep fat fryers.
Roll warmer.
Dish warmer.
Dish washer.
Egg cooker with timing attachment.
Steamer.
Two large domestic refrigerators or a small electric commercial unit.

Gas equipment for establishments taking in over $300 per day will be the same as for establishments taking in from $200 to $300

per day excepting that there will be proportionately more of it.

Commercial Baking and Roasting Ovens vs. Range Ovens. The tendency in equipping medium and large size eating establishments is to use commercial bakers and roasters instead of commercial ranges equipped with ovens, and to confine the latter in some instances to open and closed top units, using the space beneath them for the storage of pots and pans. When conventional commercial range units are installed as well as commercial bakers and roasters the range ovens are used for standby or overload purposes.

The reason for this tendency is easily understood when the limited capacity of range ovens is taken into consideration. Another reason for the use of commercial bakers and roasters is that it permits segregation of these two functions into separate departments. Even though the range ovens might in some instances be large enough to take care of all necessary baking and roasting, no cook working on short orders likes to have a pastry or meat cook kicking around under his feet when he is busy.

Why Any Open Top Burners and Candy Stoves? The time spent in bringing a closed top up to heat is considerable, and the gas used is a large factor in fuel cost. It is not practical to turn the burners on and off beneath a closed top as the cooking demand varies. As a result, closed tops, once put in operation, are apt to stay that way as long as there is any need for them. This results in a needless loss of precious heat units during standby periods. The open top burner instantly applies heat to the bottom of a cooking vessel, and there is no advantage to keeping it in operation during standby periods; hence, its use in preference to a closed top results in a very substantial saving in fuel. You may have a job on your hands to sell this idea to that type of chef who is used to keeping the top of a coal-fired range red hot at all times, but he can usually be won to it when the possibilities of fuel economy and a cooler kitchen are explained to him.

The purpose of the candy stove is one of economy, although it also helps to relieve the closed top range section of large stock kettles. Because of its top construction the candy stove makes possible the direct application of heat to the bottom of stock kettles, thereby saving fuel which would otherwise be expended in bringing the heavy top of a closed top range section up to temperature. It reduces the temptation to keep the closed top section at red hot heat during periods that it is not needed. Candy stoves are low in price and do not add appreciably to the investment.

We now have a general idea of the equipment which each type of eating establishment requires, and particularly of the one which we are surveying. We are now prepared to be ushered into the presence of His Royal Highness, the Chef, who either actually purchases the equipment for the kitchen and bakery of restaurants or has a highly influential voice in such decisions. Of the chef we will hear in the next chapter.

Safety Comes First

By GEORGE A. BURRELL*

President, Atlantic States Gas Co., New York City

THE National Safety Committee of the Liquefied Petroleum Gas Association is endeavoring to put into effect a comprehensive safety plan for the benefit of the entire industry.

The first step in the present safety plan is for companies in the industry to form their own safety committees; those who have not already done so. These company committees, in the writer's opinion, are preferably made up, with the advice and participation of the management, of course, of men from the rank and file of the companies.

It is proposed that company safety meetings be held once a month, and a monetary reward be given for attendance at the meetings.

Committee members are rotated once each six months so as to give everybody a chance to serve on the committee.

As the next step in the organization of the Association's safety work we propose to hold quarterly group meetings under the auspices of the four divisional safety chairmen of the Association. We have a national safety committee of which the writer is chairman, and four divisional chairmen, as follows:

Eastern Division. E. Martin Anderson, Utilities Distributors, Inc., Portland, Maine.

Southern Division. Selwyn Turner, National Butane Company of Alabama, Mobile, Alabama.

Midwestern Division. H. H. Henley, Minngas Company, Tracy, Minnesota.

Western Division. L. C. Roney, L. C. Roney Co., Los Angeles, California.

These men preside over four huge divisions, hence it is proposed that they divide their divisions into sections, and appoint sectional chairmen, who will name their own committees, made up of men from all the companies in a particular section.

When general divisional meetings of the Association are held, such as the one last spring in New York City, the one more recently in Denver, and the one which is to be held in September in New Orleans, general safety committee meetings will be held, of sectional chairmen, presided over by the division chairmen.

The above, in general, is the broad outline of the proposed present program. The program calls for the cooperation of every company in the Association, and as many in the industry, not members of the Association, as will cooperate.

*Chairman, National Safety Committee, Liquefied Petroleum Gas Association, Inc., New York City.

Our industry is a new one, of rapid growth, and will go ahead with a bound after the war. We are preparing for this postwar activity and thinking of sales programs, improvements in equipment, new appliances, electric competition, and the like, but how much time are we, in each company, putting on safety measures? A lot, I hope.

The National Safety Committee, and the divisional and sectional committees ask only that the industry give a part of its time to safety work, each company in the industry, and cooperate to make the Association's safety program a success. The work has been laid out.

Companies in our industry should attend sectional safety meetings, divisional meetings, and national meetings, particularly letting some of their own company committee safety members attend some of the meetings. In other words, we ask them to really put safety in the No. 1 position in their company's affairs, and whatever is done to say to themselves, "Is this safe?"

COL. GEO. A. BURRELL, chairman of the important Safety Committee of the Liquefied Petroleum Gas Association, has inaugurated an aggressive campaign to step up safety consciousness in the LP-Gas industry.

In the August issue of BUTANE-PROPANE News (Page 57), Col. Burrell described the plan he has developed in his own organization, the Atlantic States Gas Co., to interest and educate employees in safe handling practices.

This month's article shows how the country has been divided into four divisional groups to promote safety and sets out a list of recommended safety precautions.

While the Association is taking the initiative in this movement, industry members everywhere are urged to cooperate in promoting safety and to attend divisional meetings.—Editor.

We are our "brother's keeper" as far as safety is concerned. One company's accident effects the whole industry, and as much as we may compete with each other for business, in the typical American way, on the question of safety we have to work together for the good of the whole.

Below is a list of safety precautions that were compiled by G. L. Brennan, E. L. Mills, and others, at the recent Denver, Colo., meeting of the Midwest Section, and presented by Mr. Brennan to the meeting:

SAFETY PRECAUTIONS

1. Do not alter the construction of safety devices, such as excess flow check valves and relief valves. Any such practice not only encourages an accident, but automatically voids the original Underwriters' approval. This discussion applies to such practices as:

G. A. BURRELL

G. L. BRENNAN

ALGAS

BUTANE — PROPANE

CARBURETORS

ENGINEERED ON THE MULTI-JET PRINCIPLE

Heavy war-time service has proved again the outstanding merits of ALGAS multi-jet, two-step Carburetion. Models up to 300 H.P. available. Delivery of the ALGAS Carburetor and Converter, and of ALGAS parts, is prompt to those who can qualify.

ALGAS Carburetors and Converters available to those who qualify under W.P.B. L-86.

THINK AMERICAN

AMERICAN LIQUID GAS CORPORATION

1109 SOUTH SANTA FE AVENUE, LOS ANGELES 21, CALIFORNIA

a. Readjusting the spring mechanism in an excess flow check valve.

b. Drilling holes in the side of the body of the excess flow check valves. Such holes may very well prevent the excess flow valves from functioning properly.

c. Readjusting the relief valve setting.

2. Be sure that relief valves are so installed as to discharge freely into the atmosphere (preferably vertically upward) and that in the event of a fire, the flame will not project against any part of the system or against surrounding property. When it is necessary to install a relief valve within a confined space, attach a vent tube of ample inside cross sectional area to the outlet of the valve and carry this vent so that its discharge will comply with the previously stated recommendations.

3. Be sure that the inlet of the relief valve is in the gas area, not in the liquid area.

4. Provide rain caps over the outlet of all relief valves and vent tubes attached thereto. These rain caps must be of such construction as to insure that they will blow out of the way in the event the relief valve starts to function.

5. Install relief valves in such manner as to protect them from damage.

6. Install excess flow check valves so as to insure that if the line is broken, the excess flow valve will not also be broken or in any other manner damaged. In the majority of cases, this means that the excess flow check valves should be installed inside of the container in such a manner as to permit servicing them from the outside of the containers.

7. Be sure that the excess flow check valve used in a particular application is exactly correct for the anticipated operation. It is a good plan after the system is completed to test the functioning of the excess flow valves under actual operating conditions. Study the manufacturers' literature and instructions carefully in this respect.

8. Pamphlet 58 specifications for required relief valve areas are *minimum* requirements. It is a wise plan to provide additional relief area over and above the minimum requirements. The cost of such procedure is negligible.

9. If a relief valve leaks under normal conditions, it indicates one of several conditions:

a. Fuel in the container may be of a higher pressure than should be used in that particular container.

b. The container may be filled beyond its specified filling level.

c. There may be dirt or other foreign material on the end of the valve.

Do not under any circumstances, even as a temporary expedient, plug the outlet of the relief valve under any of these conditions.

10. It is a good and inexpensive practice to periodically replace relief valves and return them to the manufacturer for test and such reconditioning as may be required.

11. Always be sure that a bug screen is installed in the outlet of the regular vent mechanism.

12. Do not use a flame when checking for leaks. The careful use of soap water is the recommended good practice.

13. Always check any installation for leakage by using a test gage adaptor inserted between the cylinder valve and the pigtail leading to the regulator. This is done by open-

ing the cylinder valve, carefully checking the reading on the gage and then shutting off the cylinder valve. While this is being done all appliances, *including all pilot lights*, shall be shut off. Any leakage in the system, either low pressure or high pressure, will cause a drop in the gage reading. If the gage stands motionless for 15 minutes, the system can be adjudged gas tight, as even the slightest leak will cause an appreciable rapid drop because of the very small volume of gas trapped between the cylinder valve and the regulator inlet. This check is superior to the use of soap water and checks against both high and low pressure leaks. If a leak is noted then the soap water application can be used to isolate the leak. Do not attempt to make the foregoing leak test by use of a water manometer or low pressure test set since too much time will be required to discover such a leak. This is because the high pressure gas trapped in the pigtail will feed the low pressure system and maintain the low pressure in the system until it is exhausted, which leads to false conclusions if too hastily arrived at.

14. Do not remove a cylinder from a pigtail on two cylinder systems until the replacement cylinder is at hand unless a POL cap is securely attached to the outlet end of the unconnected pigtail. If a POL cap is not handy, the pigtail can be removed from the system and a POL plug securely inserted in its place as an alternative.

15. Do not put LP-Gas of a higher vapor pressure in containers originally designed to handle material of a lower vapor pressure.

16. Great care must be exercised to prevent filling containers beyond their rated liquid fuel capacity.

17. Be sure that the inlets of all relief valves are free of restriction.

18. Install excess flow check valves or back pressure check valves on all outlets of containers in accordance with requirements of Pamphlet 58.

19. In the event of an accident resulting in fuel being discharged from a container, it is better to let the discharge burn rather than trying to extinguish the flame. When such a break occurs in a portable cylinder, if at all possible, get it in such a position as to insure vapor, not liquid, will discharge from the container.

20. Do not under any circumstances install containers inside of buildings. Refer to Pamphlet 58 for specified locations.

21. Always be sure that the protective cap is installed over valves before transporting portable cylinders.

22. Before removing empty portable cylinders from a system, be sure to shut off the cylinder valve.

23. If it is necessary to install a pressure reducing regulator inside a building or adjacent to any opening into the building, be sure to pipe the vent outlet outside the building and the outlet of the vent tubing at least 5 ft. away from any opening into the building which is below such outlet.

24. Retest all ICC cylinders every five years, as ICC rules provide.

25. After filling portable cylinders, test for leaks particularly at fuse plugs at the top end (or) bottom of the container.

26. Do not fill cylinders or containers without first determining the specifications under which such cylinders or containers were manufactured and in the case of ICC cylinders be sure that they have been periodically tested.

27. Do not manifold or in any other manner connect multiple truck tank containers together.

a. Readjusting the spring mechanism in an excess flow check valve.

b. Drilling holes in the side of the body of the excess flow check valves. Such holes may very well prevent the excess flow valves from functioning properly.

c. Readjusting the relief valve setting.

2. Be sure that relief valves are so installed as to discharge freely into the atmosphere (preferably vertically upward) and that in the event of a fire, the flame will not project against any part of the system or against surrounding property. When it is necessary to install a relief valve within a confined space, attach a vent tube of ample inside cross sectional area to the outlet of the valve and carry this vent so that its discharge will comply with the previously stated recommendations.

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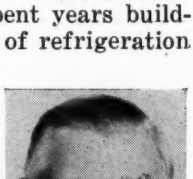
27. Do not manifold or in any other manner connect multiple truck tank containers together.

Service Schools Make Hit With Dealers in Midwest

By LOWELL P. KEMPER
District Sales Manager
Illinois Bottled Gas Co.,
Indianapolis, Indiana

WE, in the bottled gas business, have spent years building up to the field of refrigeration with LP - Gas.



L. P. KEMPER

In the past, say in 1936 and 1937, we were greatly handicapped in soliciting our customers to add refrigeration to their gas line. The reasons were many, some of which were: It was a new field and not profitable to the only manufacturer of gas refrigerators in the field, Servel, Inc., of Evansville, Ind. That company's literature said nothing about bottled gas, mentioning only city gas and kerosene. The distributors were not interested because, being a new field of operation, the bottled gas dealers knew nothing about the refrigerator, and the distributor was not equipped to teach him or do the service for him. Bottled gas was still high in cost. Last, but not least, we bottled gas men were not thoroughly sold on gas refrigeration.

In spite of all the aforementioned stumbling blocks, we continued to add gas refrigerators to our line.

Then things began to happen. The bottled gas companies were able to lower the cost of delivered gas to the customer. That helped considerably, but we still had trouble in our servicing, principally because we knew very little about the working of a Servel refrigerator. It seemed that the way to service a Servel refrigerator was a deep, dark secret, not to be revealed by anyone who was fortunate enough to know how to service them.

Later, many bottled gas companies were invited to send their field men to Evansville for a training course. We attended these schools and came away, filled with new enthusiasm and a great increase of knowledge of gas refrigeration.

We went out in our respective territories and began to preach the gospel of gas refrigeration to our dealer organization. We had some semblance of success in spots, but we needed something more—and we have received it from Servel in the form of dealer service schools in which factory men are teaching our industry how efficiently this refrigerator will operate on bottled gas and how to keep it up to peak performance.

Servel started in the winter of 1943 to conduct these dealer service schools. They were well located, covering the northern part of Indiana in such manner that all dealers could attend and not travel far from their homes. This was important because war-time travel was most critical during this period.

Although refrigerators were off the market and none could be sold, we did get a very agreeable response from the dealers that attended these schools. The typical remark was, "Had I known how simple it was to properly adjust a Servel refrigerator, I could have sold dozens and dozens in my territory."

But this opportunity for dealers was occurring in northern Indiana only. As yet nothing was done in southern Indiana. This summer, however, Servel reopened the service schools for the southern part of the state. We had, and are still having, the same response from the dealers attending these schools.

We bottled gas men, and I mean to include all parts of the big family —the gas distributor, range, water heater and refrigerator manufacturer —have all been guilty of a careless attitude toward service. We have been fortunate in being well provided with customers—so well, in fact, that we forgot that those purchasers were entitled to service.

The average gas appliance is in need of some service adjustment from time to time. If you doubt what I say, just look at the next appliance you see—check to find out if the air is properly adjusted, if it has the correct size and type of orifice, and such a simple thing as a neat installation. As long as faulty conditions exist they present reasons why present gas customers might consider replacing their present appliances with electrical ones after the war.

Servel is endeavoring through its service schools to teach the serviceman to do a good job of installation and in this way paving the ground for a prosperous postwar future. Servel is dependent upon

One of the important parts of the service school is the care and use of the manometer. Above, Raymond Rains, Dri-Gas dealer of Louisville, Ky., is pictured filling instrument with water preparatory to use.

the serviceman to perform for its refrigerator a quality of service for the customer commensurate with the manufactured efficiency of the appliance. The same is true of other manufacturers and their products. The gas appliance, as it comes from the factory, has a required efficiency, but the serviceman is the one to adjust that appliance and to maintain the service it is capable of giving.

The bottled gas dealers in the territories covered by those service schools should take advantage of this training. It is something we have been needing for the last several years. These service schools are conducted by experienced men, who know by years of actual work in the field of service how a Servel refrigerator should perform to be worthy of its reputation. I hope that other manufacturers follow their example, and give us a much needed service training on their products.

To me, it is a great satisfaction to know that, through these schools, bottled gas will become increasingly recognized as a fuel for refrigeration.

I have tried to set down the personal reaction that the service schools have had on me. I do believe we have all been too anxious to make sales and have forgotten the importance of service.

The second phase of the five-hour service school. One of the important parts of this school is actual work with burner and thermostat kits pictured above. Lowell Kemper, author of the article, is third from the right, standing.

What of the Postwar Market?

RECENTLY, Butane-Propane *News* invited officials of appliance manufacturing firms to express their opinions regarding what LP-Gas dealers might best do now and after the war to be ready for the expansion of the industry that is expected to come.

A number of replies were published in June, July and August. Another appears herewith. Dealers and distributors of appliances, equipment and fuel will profit from the advice and suggestions of those who have a national outlook.—
—Editor.

Selling Still Needed!

By LYLE C. HARVEY
President, The Bryant Heater Co., Cleveland, Ohio

ANY one of us whose postwar success depends upon the use of gas makes a costly mistake if he assumes that Mr. and Mrs. America will flood us with orders when present restrictions are lifted. It's still going to take selling — real intensive selling — to do the job!

L. C. HARVEY

True, there seems to be a great volume of business piling up behind the wall of unsatisfied consumer demand. We in the gas industry, of course, are most conscious of the public's call for lifting of the ban on gas. Unless we are careful, however, we may let those voices amplify in our ears, grow to proportions beyond their true importance, and lull us into the frame of mind that business will fight to get into our doors.

Rationing has accentuated a noticeable dissatisfaction with oil burners on the part of the public. Questionable quality of obtainable coal has made those with coal furnaces supercritical, more outspoken in their dissatisfaction than normally, and loud in their demands for gas.

Remember, however, that many of these conditions unfavorable to competitive fuels will be corrected by peace. Users of these competitive fuels, therefore, may not remain as positive in their ideas that they must have gas service for heating.

Certainly, we have enough advantages to sell gas against any other fuel — its cleanliness, dependability, simplicity in operation and economy. But we must keep before us the fact that *selling still will be needed to sell gas!*

Sell the Complete Gas Kitchen*

FORTUNATELY a movement is on foot to advertise and promote the coordinated gas kitchen, when the war is over.

This is an excellent idea that you should support, advertise and promote up to the hilt. It is bound to result in extra sales of gas ranges, gas refrigerators, gas water heaters for kitchen installation and indirectly in the sale of gas heating and air-conditioning equipment for the home.

When you sell the idea of an entire

*From address by Arthur P. Hirose before Southern Gas Association Convention.

new kitchen to women, you give them a goal to shoot at—something to which they can aspire—something they can plan for and achieve.

If you advertise and promote the coordinated gas kitchen idea the gas industry will at least get its share of the postwar range, refrigerator and water heater business.

All Male Labor Must Be Hired Through Employment Service

Completion of local plans in every State to put into effect the War Manpower Commission's order that all male labor must be hired through the U. S. Employment Service or such channels as it may designate, was put into effect July 1, announced Chairman Paul V. McNutt. This national program, he explained, results from the setting up of a nation-wide system of manpower priority referrals to give war industries the labor they need.

Women, as well as men, have been brought under the priority referral system in many communities.

The priority referral plan with its provision that employers do all their hiring through the designated channels, will, the chairman believes, make it possible to bring about the transfer of many workers from less-essential to essential industries and from areas where there is a surplus of labor to those where the obtaining of labor has become a serious problem.

Employment ceilings have been established in Group I and II communities, in which labor is scarce.

As an indication of the importance of placing employment ceilings on industries in the tight labor market areas, Mr. McNutt said there are now in these areas 79 per cent of the nation's munitions industries.

100-Octane Program Almost Completed

Eighty per cent of the authorized projects in the 100-octane aviation gasoline program of the United Nations has been completed, Deputy Petroleum Administrator Ralph K. Davies has announced.

One hundred and eighty-nine separate projects were involved in the program, of which 150 have now been completed. Seven of these were built in 1942, 71 in 1943, and 72 have been finished so far this year. Of the remaining units, 25 are expected to be ready this summer and the balance during the fall.

Following is a breakdown of the 100-octane construction program by type of installation (some of the installations include more than one unit of a particular type):

Type of Unit	*Completed*	*Building*	*Total*
Alkylation	56	13	69
Isomerization	26	9	35
Fluid Catalytic Cracking	26	7	33
Thermofor Catalytic Cracking	10	6	16
Houdry Catalytic Cracking	9	1	10
Houdry Catalytic Cracking *(revamping)*	4	..	4
Hydrogenation	2	2	4
Dehydrogenation	2	..	2
Miscellaneous	15	1	16
	150	39	189

Mr. Davies also made public a list of companies which have participated in the 100-octane construction program, with the plant locations, types of units, and completion dates. The list does not cover units that were already contributing to 100-octane production before the start of the current construction. In all, approximately 450 refineries and natural gasoline plants are now engaged in making 100-octane or its components.

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Civilian Production May Come From "Spot" Manufacture Rules

RULES which permit WPB field offices to authorize the manufacture of civilian type products under certain specific conditions so as not to interfere with the war effort, have been established, Donald Nelson, WPB chairman, announced Aug. 15.

"These rules, which are contained in Priorities Regulation No. 25, implement the so-called 'spot' or field authorization procedure which is the fourth and final step in the program recently approved by the War Production Board to provide a mechanism for partial conversion of industry from wartime to peacetime production," Mr. Nelson said.

"This is primarily a plan to decentralize some of the operations which will be necessary to 'take up the slack' as men and materials cease to be needed for war purposes. Above everything else, it is vital to arrange the machinery so that in the future, when military demands decline or change, the men, the facilities and the materials which are set free can speedily be put to other uses.

"Under the terms of the 'spot' procedure, field offices will be in a position to authorize production of civilian goods now, provided the materials, manpower, and facilities not needed for war production are available . . . "

Orders subject to the spot authorization procedure include:

L-5-c, refrigerators (except electric)

L-21-a, domestic electric ranges.

L-23-c, domestic cooking appliances and heating stoves.

L-173, gas and oil burning space heaters.

L-182, commercial cooking equipment.

L-185, water heaters.

L-199, plumbing and heating tanks.

War Production Board spokesmen state that speedy reconversion to civilian production can occur when Germany collapses. There are said to be 270 separate L orders, limiting the type of civilian wares which can be turned out, and 267 M orders, which have conserved materials, which can be set aside almost immediately.

New Northwest Organization Will Sell LP-Gas Equipment

C. M. Ambrose, president of the Liquefied Gas Corp., of Seattle, also heads as president a newly organized concern named the Gas Equipment and Supply Co., of 9611 Marginal Way, Seattle. C. A. Christensen, formerly Northwest manager in Oregon and Washington for the James Graham Manufacturing Co., makers of Wedgewood ranges, is sales manager of the new company.

The Gas Equipment and Supply Co. will distribute LP-Gas appliances and equipment to butane and propane dealers in the Northwestern states.

Water Heater Order Amended

The controlling order governing water heaters (L-185), has been amended by providing that where the applicant will need controlled materials in order to produce the additional equipment, letter requesting authorization should be accompanied by an application on Form CMP-4B for the controlled materials.

CURRENT READING

● **Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry.**

Many Factors to Consider in Gasoline-Plant Projects—W. F. Matheny. "Oil and Gas Journal," April 27, 1944, pp. 61, etc. A procedure is presented for analyzing long-range operating and economic factors involved in planning for a natural-gasoline plant in connection with a pressure maintenance program for an oil-producing area. Except for proration, wage, and price considerations, guess work has been largely removed, now that there are no longer any important facts regarding plant design which are not generally known by operating organizations.

Instrument Maintenance in an Oil Refinery — V. H. Hiermeier. "Instruments," April, 1944, pp. 199, etc. Author devotes this paper to the instrument man, his training, shop, duties, and the importance of his job.

Joint Repressuring Project Slows Production Dip in New Harmony, Illinois Field. "National Petroleum News," April 19, 1944, pp. 18, etc. Association formed by Superior, Sun and Tide Water with engineering group in charge typical of new conservation policy. Described and illustrated.

Use of the Mass Spectrometer in Routine Analysis of Refinery Gas Samples — J. G. Schaafsma, General Petroleum Corporation. "National Petroleum News," April 5, 1944, pp. R-196, 198, 200. Use of the mass spectrometer for refinery control purposes is described from experience in the operation of an acid alkylation plant. A short method of analysis is applicable where the operation can be controlled on the basis of one or two key components. Analyses can be reported in from 25 minutes to two hours after receiving the sample. Operators should be chosen for their skill and technique in handling precision equipment.

Cycling Has Significant Relation With Natural Gas Operations—R. W. Ducker and F. H. Dotterweich. "Oil and Gas Journal," May 11, 1944, pp. 107-109. In this paper, the authors project natural gasoline and cycling operations through the war and into the postwar era to show the intimate relationship with the natural gas industry and to point out some of the potentialities for closer association in the future.

Heater Is Essential Part of Butane Fuel System on Drilling Rigs—H. F. Simons. "Oil and Gas Journal," May 25, 1944, pp. 77-79. This article describes the features of the design of a satisfactory butane fuel system for the drilling rig. It points out that by providing butane heaters for each engine, simple heating of the fuel is assured when one or more of the engines is shut down. These heaters may be permanently installed on the skids of the individual engines.

Modern Pressure Vessel Design and Construction Materials—C. M. Scudder. "Petroleum Engineer," May, 1944,

pp. 170, etc. A plea for modification of regulations in keeping with present state of emergency.

It's Easy to Check Flowmeter Accuracy — W. O. Bennett. "Power," May, 1944, pp. 88-90. Author gives a table of differential-pressure values that includes all types of head flowmeters and shows how to use these data when making simple meter calibration tests.

Thermal Properties of Hydrocarbons—J. F. Fallon and K. M. Watson. "National Petroleum News," June 7, 1944, pp. R-372-375. Article 2. Improved correlations applicable to various types of hydrocarbons are developed for heat capacities in the liquid and ideal vapor states and for heats of vaporization. These correlations are based on consideration of the data recently developed from spectroscopic measurements and are mutually consistent with one another by generalized thermodynamic methods. Enthalpies calculated from the resultant charts are in good agreement with calorimetric data on petroleum fractions.

Economic Design of Pressure Vessels—E. F. Brummerstedt. "National Petroleum News," June 7, 1944, pp. R-362-364. Article 2—Shape of heads. The economical design of a pressure vessel necessitates selecting the proper type of head—ellipsoidal, or flanged and dished. Either of them, properly designed, will be satisfactory in most cases for meeting operating conditions. But one or the other will usually be more desirable from the cost angle, depending upon pressure, temperature, size and like conditions. In this article the author develops methods for computing the comparative costs of the two types of heads, working out examples of both. He then proceeds to point out general conditions under which one type of head or the other would be more efficient.

Chemicals from Natural Gas and Natural Gasoline—J. H. Kunkel. "Petroleum Engineer," June, 1944, pp. 70, 72, 74. Hydrocarbons contained in these products offer wide field for manufacture of industrial chemicals.

Experimental Spectroscopy—R. A. Sawyer. Published 1944 by Prentice-Hall, Inc. The purpose of this book is to discuss prism and grating spectrographs and the techniques of their use in research. It is designed for students of spectroscopy and for those in research laboratories who wish to make use of spectroscopic procedures. For this reason, extensive mathematical treatments have been avoided; a background of general physics and some physical optics should be sufficient for an understanding of the presentation.

Digest of United States Patents on Dehydrogenation and Dehalogenation of Hydrocarbons—H. Heinemann. "Petroleum Refiner," April, 1944, pp. 142, etc.

How to Watch Fuel Use — W. S. Bard. "Heating, Piping and Air Conditioning," April, 1944, pp. 192-194. Article 3. The monthly report.

Corrosion of Buried Metals and Cathodic Protection — M. C. Miller. "Petroleum Engineer," April, 1944, pp. 101, etc. Part 2. Part 1 in March issue.

Pumping Light Hydrocarbons—R. G. Lovell. "Petroleum Refiner," April, 1944, pp. 83-88. How the problem has been solved by improved pump design is described in this article. Various types of pumps are discussed.

Production of Products For Civilian Use

The Chicago Association of Commerce has distributed a bulletin to its members listing WPB "L" and "M" Orders which have been amended to relax restriction in material and production controls. Among several are the following:

L-23-c—WPB has discontinued its program of "concentration of production" for the stove industry. A manufacturer may make application to produce non-electric stoves if (a) it will not interfere with his war work, (b) he produced stoves during the base period—July 1, 1940 to June 30, 1941. An apartment size gas range model may be produced and thermometers may be used.

L-154—Use of bronze in the manufacture of water meters up to one-inch size is now permitted.

L-185—Direct-fired sidearm water heaters may be made with copper coils and brass terminal outlets. Indirect water heaters may be made with brass terminal outlets and spacer plates. Steel tubing may be replaced with copper tubing. Metal jackets for water heaters are permitted if made from idle and excess inventories of steel.

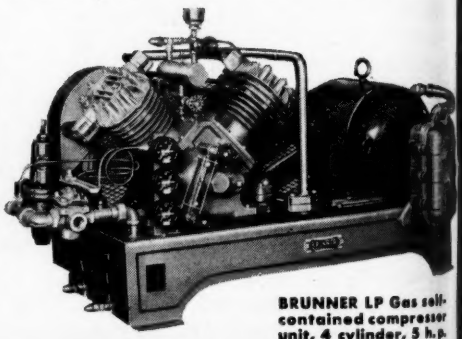
L-199—Specifications for range boilers and hot water storage tanks have been revised to permit more satisfactory equipment. Double extra heavy range boilers are permitted. Hot water storage tanks may be made in desirable sizes.

L-248—Commercial cooking equipment, food and platewarming equipment and non-electric commercial dishwashers may be produced in limited quantities.

When you UNLOAD TANK CARS make sure they're EMPTY!

After all liquid petroleum has been transferred from a tank car or tank truck there is still a considerable quantity of vapor left in the tank. This cannot be recovered by a liquid pump. This vapor amounts to from 500 to 1000 lbs. of LP Gas in every tank car unloaded! You pay for this lost poundage as well as its transportation!

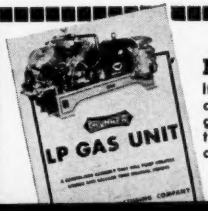
This vapor can be recovered with the Brunner LP Gas Unit, a compressor assembly that pumps volatile liquids and recovers their residue vapor. It is a package unit that is outstanding in speed, efficiency, safety and low cost. Brunner Manufacturing Company, Utica, New York, U. S. A.



BRUNNER LP Gas self-contained compressor unit, 4 cylinder, 5 h.p.

ARMY E NAVY BRUNNER

For over 36 years the Symbol of Quality



WRITE FOR THIS NEW FREE BOOKLET

It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.

THE TRADE

The Commercial Shearing & Stamping Co., Youngstown, Ohio, has recently appointed Ralph E. Beisner its sole agent for the states of California, Arizona, Nevada, Washington and Oregon. He will be equipped to handle inquiries and orders for the complete line of medium and heavy stampings, flanged and dished code heads for butane and propane tanks, eliptical heads for the same uses and spheres for aboveground propane storage.

RALPH BEISNER

Mr. Beisner was formerly sales manager of Superior Tank & Construction Co., Los Angeles.

The Commercial Shearing & Stamping Co., is now offering the LP-Gas industry a complete line of spheres for domestic and bulk storage for high pressure gas. These run in gross water gallonage sizes of 123, 150, 250, 430, 500, 1000 and 4530, with inside diameters ranging from 38 in. to 10 ft. 6 in.

The 123- and 150-gal. units will be available in two pieces unassembled, and the other sizes in six equal segments unassembled. The company does no welding or assembling, but the edges of all parts will be beveled suitable for code welding. No complete tanks are made, but the segments are shipped to all tank manufacturers so ordering.

Harper-Wyman Co., Chicago, was presented with the Army-Navy "E" award for excellence in production of war materials in ceremonies July 13. The award was made by Com-

Presentation ceremony July 13 when the Army-Navy "E" Award was conferred upon the Harper-Wyman Co., Chicago, manufacturers of the Harper burner system. Third from left in first row is Philip S. Harper, president, with Mrs. Harper next.

mander James Ward, U. S. Navy, with presentation of Army-Navy "E" pins to employees by Lt. Col. F. E. Swanson, U. S. Army.

Philip S. Harper, president of the company, developed the Harper burner system, beginning manufacturing operations in 1927. The Harper valve and burner was a new idea for top burner cooking, each burner being two burners in one—a large burner for quickly heating the contents of a vessel to the boiling point, and a small inner burner that could be used independently to keep the food boiling. The system is in wide use on gas ranges today.

Although the Harper burner system is the principal product of the company, a variety of valves, burners, automatic lighters, and stove fittings for domestic and commercial gas ranges are produced in peace time.

Pressed Steel Tank Co., of Milwaukee, Wis., is re-opening its branch offices in Chicago and Los Angeles effective in August. This expansion of the field organization is dictated by the company's plans to increase its service to customers. Kenneth Cole will be in charge at Chicago at 208 S. LaSalle St. James Barr will be in charge in Los Angeles, at 727 West 7th St.

Norman A. Evans, sales manager in the home office, in Milwaukee, states that Mr. Cole and Mr. Barr have been identified with Pressed Steel Tank Co. for many years, and are widely acquainted throughout the country. Soon after the outbreak of war, both of these men were recalled to Milwaukee in order to assist with erection and management of a new plant for war production. Later, Mr. Cole was given a leave of absence to

At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write us for higher quality Butane and Propane.

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HANDBOOK
BUTANE-PROPANE GASES

In these two volumes, 896 pages of technical information about production, distribution and uses of LP-Gases . . .

ANSWERS

to your questions about

PHYSICAL and CHEMICAL PROPERTIES

PRODUCTION

TRANSPORTATION

STORAGE

DISTRIBUTION

UTILIZATION

REGULATIONS, ETC.

"Few, if any, industries have had as complete and up-to-date technical and operating information to guide them in their early stages of development as has the LP-Gas industry with its Butane-Propane Handbook," says Woodward Martin, Manager Stargas Department, Lone Star Gas Co.

Why not make your library complete? We have a few copies of the revised Second Edition of the Handbook still available. These, and the Third Edition, sell individually at $5 per copy. While they last we offer *both* editions, in combination, for the bargain price of $7.50. Order your copies today.

We pay postage on orders accompanied by check or money order. In California add 19c for sales tax. In Canada add 75c for excise tax.

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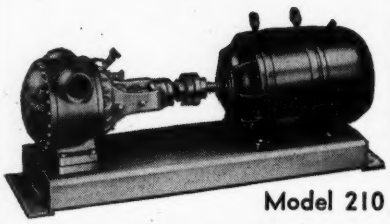
SMITH
BUTANE-PROPANE
PUMPS



Model 210

STANDARD EQUIPMENT

With Leading LPG Engineers

MODEL 210 (Above) • 2" pipe size. Capacity 50 GPM at 1750 RPM for direct connecting to electric motor.

MODEL 211 • 2" pipe size. Capacity 50 GPM at 500 RPM for tank truck direct connected to power take-off.

MODEL 300 • 3" pipe size. Capacity 100 GPM at 1750 RPM for direct connecting to electric motor.

MODEL 301 • 3" pipe size. Capacity 100 GPM at 500 RPM for large transport service direct connected to power take-off drive.

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BALANCED GEAR CONSTRUCTION RELIEVES BEARING LOADS

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FLUID SEALED PACKING BOX ELIMINATES HAZARDOUS LEAKS

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250 LBS. WORKING PRESSURE

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Complete Assemblies
Including Motors

Write for literature and prices.

SMITH *Precision Products* COMPANY
1135 MISSION ST.-SOUTH PASADENA, CALIF.

join the War Production Board, in Washington, where he served for a year as chief of the steel barrel and gas cylinder section of the Containers Division.

GILBERT SCHADE

Gilbert Schade has recently been appointed to the staff of the advertising and sales promotion department of Servel, Inc., according to R. J. Canniff, advertising and sales promotion manager.

Mr. Schade, who was employed by the Pratt & Whitney Division of United Aircraft, served 5 years as sales promotion manager with the Silex Coffeemaker Co. He was also with the John B. Fairbairn agency of Hartford, and for two and one-half years was on the sales promotion staff for the Hartford Steel Ball Co.

He attended Rutgers University in New Brunswick, N.J.

J. C. Kellner, formerly assistant manager of sales service at Servel, Inc., Evansville, Ind., has been appointed acting manager of the department, succeeding Prescott B. Wiske who died of a heart attack June 5 in Denver, Colorado.

Mr. Kellner joined the Servel organization in April, 1928. He is a native of Henderson, Ky., and a graduate of Purdue University.

The Estate Stove Co., Hamilton, Ohio, has been notified of a renewal award for its employees of the Army-Navy white star for "meritorious services on the production front." This white star has been added to the "E" pennant previously presented.

The renewal award now qualifies

employees who have been added by Estate since the original presentation to wear the Army-Navy lapel pins.

Estate's present war work contracts include powder tanks and cartridge tanks for the Navy; anti-tank mines for Army Ordnance; immersion water heaters, conversion generators and a number of other items for the Quartermaster Corps; under-wing assemblies and door for the C-46 cargo plane.

The Dallas Tank Co., Inc., is now the official name of what was, until Aug. 18, the Dallas Tank & Welding Co., Inc., Dallas, Texas. The change was made solely for the sake of brevity.

H. L. LEYDA

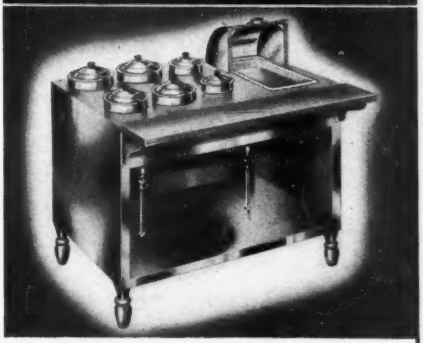
W. W. Banks, president of the company, also announces that Harry Louis Leyda has accepted the position of vice president and sales manager of the firm.

Mr. Leyda began his business career with the American Steel Foundries, of Chicago, in 1915, and but for the time he spent in service during World War I, was that company's efficiency engineer for improvements in production facilities and cost reductions in operations at their steel casting plants until 1927. From 1927 to 1944 he was with Miles P. Brown Boiler Works, Franklin, Pa., and served as assistant to Deputy Executive Director with the War Manpower Commission in Washington.

Earl McGee has been appointed works manager of Renown Stove Co., according to an announcement by B. A. Nagelvoort, president. Mr. McGee

Postwar VOLUME

FOR THE LP-GAS DEALER

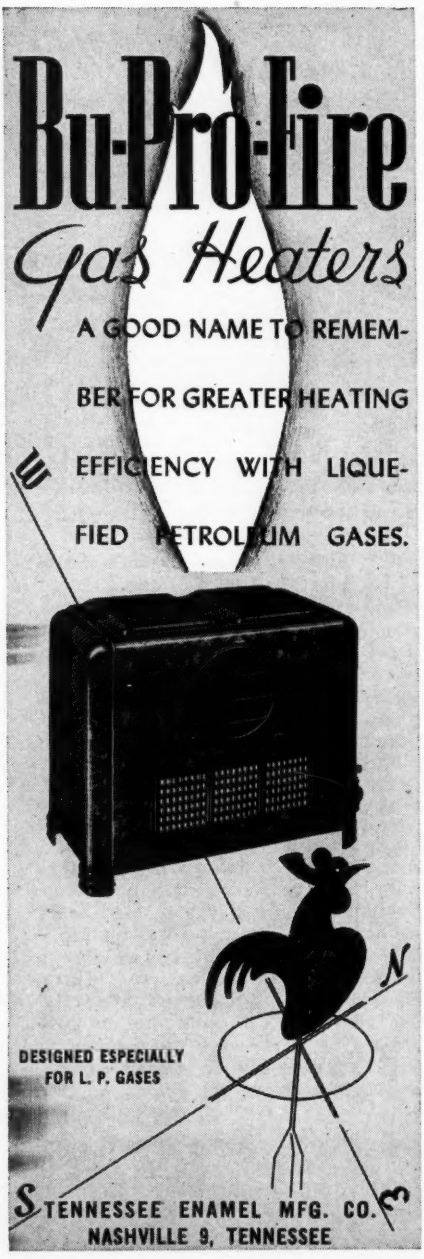


GAS-HEATED STEAM TABLES

Supplies of metals and materials used in the manufacture of food service equipment are now "easier" than they have been for many months. But finished products are still limited by the urgent requirements of our armed forces. From our plant, food service equipment goes to training camps and industrial war plants . . . metal furniture, galley and sick bay equipment to the Navy and Merchant Marine . . . and hospital equipment to Army and Navy hospitals.

• The unit illustrated above—a heavy-duty steam table—is only one of many popular items of Blickman food service equipment which will be available to you when "V" day comes. All of them, including coffee urns, plate warmers, etc., have been specially designed for use with butane-propane. *Plan now to sell these substantial "load builders" for added volume and profits. Write for details.*

S. BLICKMAN, INC.
Manufacturers of Food Service Equipment
2109 Gregory Ave. • WEEHAWKEN, N. J.


Bu-Pro-Fire
Gas Heaters
A GOOD NAME TO REMEMBER FOR GREATER HEATING EFFICIENCY WITH LIQUEFIED PETROLEUM GASES.
DESIGNED ESPECIALLY FOR L. P. GASES
TENNESSEE ENAMEL MFG. CO.
NASHVILLE 9, TENNESSEE

comes from Baltimore, Md., where he has been affiliated for the past 30 years with The Standard Gas Equipment Co., manufacturers of gas ranges.

C. V. McConnell, general sales manager of the Tappan Stove Co., Mansfield, Ohio, has announced the organizing of a retail sales training program to provide for efficient training of new, inexperienced and untrained retail sales people to be employed when gas range merchandising is resumed.

D. S. SHARP

The new program, which will also be a "refresher" course for Tappan salesmen, will be directed by Donald S. Sharp, under the supervision of W. Hubert Tappan, vice-president. Tappan representatives will assist in the training of retail sales people through sales meetings, personal contacts and other forms of assistance.

The course will be founded upon (1) fundamentals of retail selling, (2) product structure and features, (3) use of product, and (4) most effective demonstration.

Shell Oil Co., Inc., has elected F. E. Rehm as a vice president of the corporation, according to S. Belither, chairman of the board.

Mr. Rehm joined the Shell organization in 1916 in Ventura, Calif., became production manager in 1935, made head of industrial relations in 1938 and since July, 1942, has been manager of industrial relations and the personnel department. He will continue in charge of the last named

THOMAS Cylinder Truck Saves Men, Time and Lawns

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES AVAILABLE NOW

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

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Tank illustrated was designed, engineered and built by American.

High pressure tanks of unique design, engineered to meet specific requirements are fabricated by American day after day. Inquiries regarding your present day or post war problems are invited. There is no cost or obligation.

AMERICAN PIPE & STEEL CORPORATION

Manufacturers and Distributors

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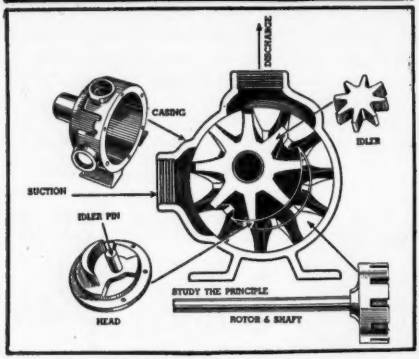
MEMO:

To Engineers and Purchasing Agents



You hit the jackpot when you specify Vikings as MUST EQUIPMENT for any rotary pumping job. Viking Pumps operate on the famous "gear within a gear" principle, with only four major parts and ONLY TWO MOVING PARTS. Simplicity of design, plus highest quality construction, carried forward for 33 years, have brought Viking to today's position of leadership in the rotary pump industry.

Write today for Bulletin 2300 which gives complete information about Viking Pumps widely used in the butane-propane industry. IT'S FREE.

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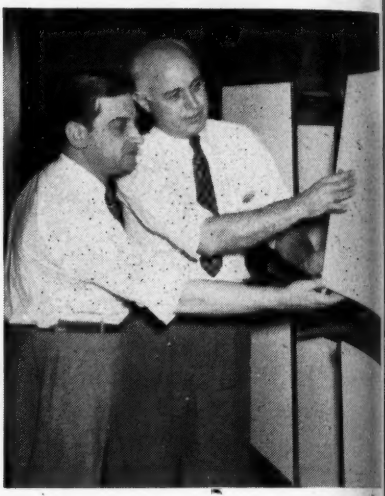
VIKING PUMP COMPANY
CEDAR FALLS, IOWA

department in addition to his new duties as vice president and his headquarters will be at the company's San Francsico office.



Enrique Wurth, Santiago, Chile, and Everett Shands, Geo. D. Roper Corp.

Enrique Wurth of Santiago, Chile, a wartime guest of the Geo. D. Roper Corp., has been studying porcelain enamel processing methods in the Roper plant. He is one of a number of South Americans now in this country under the sponsorship of the Inter-American Trade Scholarship Program division of the Office of Inter-American Affairs, Nelson A. Rockefeller, coordinator.

Mr. Wurth has been working with Everett Shands, Roper ceramic engineer and metallurgist. Early in August, he terminated his activities to report on his findings in Washington, D.C., and return to Chile.

Payne Furnace & Supply Co., Inc., Beverly Hills, Calif., in peacetime one of America's largest manufacturers of heating equipment, has won, for the

second time, the Army-Navy Award for meritorious services on the production front and the right to add the "White Star" to its "E" flag, according to notification just received from Under Secretary of War Patterson by E. L. Payne, president of the company.

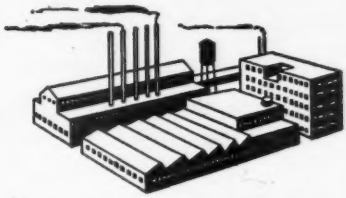
Col. Raymond L. Abel, commanding officer of the Pittsburgh Chemical Warfare Procurement District, presenting Army-Navy "E" to Scaife Co. at Oakmont, Pa. plant.

Scaife Co., Oakmont, Pa., has been awarded the Army-Navy "E" for outstanding production of war materials. The award ceremony was held July 7 at Scaife Field, Oakmont.

Presenting the award was Col. Raymond L. Abel, Commanding Officer of the Pittsburgh Chemical Warfare Procurement District. The acceptance was made by A. V. Murray, executive vice president of Scaife Co.

Comm. C. E. Egeler, Officer in Charge of Munhall-Pittsburgh Area Resident Inspector Naval Materiel, presented the pins to the employees. Fred Elder, oldest Scaife employee, accepted.

The Flame of the Forge



The quickened tempo of Western production has brought a bright opportunity to prove the usefulness of liquefied gases in many fields. Standard of California has met the challenge by maintaining carefully determined standards of quality, by utilizing its facilities to make as much liquefied petroleum gas available as possible.

Today's Standard L.P.G. service is necessarily streamlined to feed the flame in the war forges—but it's aimed to increase the stature of the entire industry in a peaceful tomorrow.

BU-GAS
Reg. U. S. Pat. Off.
For Automotive and Industrial Use

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For Homes Beyond the Gas Mains

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INDUSTRIAL GAS No. 1
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PRO-GAS
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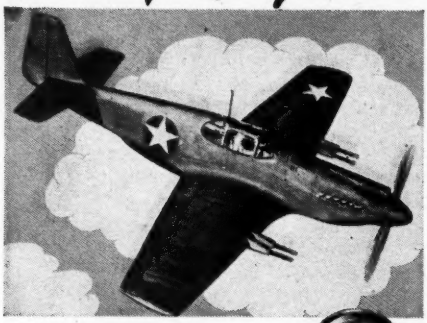
STANDARD OF CALIFORNIA

Today's Fighters

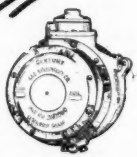


Use Tomorrow's Oven Heat Controls

Robertshaw

ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PENNSYLVANIA

CENTURY



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Lynwood, California

Manufacturers of:

- Butane-Propane carburetors and heat exchangers.

We are looking for responsible dealers in oil field, farm and truck areas, where we are not yet represented.

Write us for catalog.

Colonel Willard F. Rockwell, president of the Pittsburgh Equitable Meter Co.-Merco Nordstrom Valve Co., has announced the appointment of A. J. Kerr to the position of general sales manager for the combined organizations. Mr. Kerr, 20 years with the company, was district manager of the firm's midwest headquarters at Tulsa, Okla., prior to his Pittsburgh home office appointment.

A. J. KERR

Mr. Kerr's first official act as sales manager was to appoint M. D. Gilbert as district manager of the Tulsa office; C. K. Madison as district manager of the Houston, Texas, office, and W. S. Andrews as district manager of the Pittsburgh, Pa., office of the company. Mr. Gilbert and Mr. Madison formerly served as service engineers in the Midwest territory, which includes the states of Arkansas, Louisiana, New Mexico, Texas, and Oklahoma. Mr. Andrews, formerly a service engineer out of Pittsburgh, has more recently traveled the state of Ohio for the company, out of Cleveland.

Ole Berg, Jr., has been appointed manager of marketing, a newly-created position, for the Union Oil Co. of California.

In his new post, Mr. Berg is assigned responsibility for Union Oil's marketing activities in the United States, Alaska, Lower California, Honolulu and Canada.

Gasair Corp., San Francisco, and **Eaton Metal Products Co.**, Denver, Omaha, Albuquerque and Billings, have combined certain of their liqu-

BUTANE-PROPANE EQUIPMENT

PUMPS
METERS
HOSE
VALVES
REGULATORS
FITTINGS

Roadmaster Sales Corp.
of Texas
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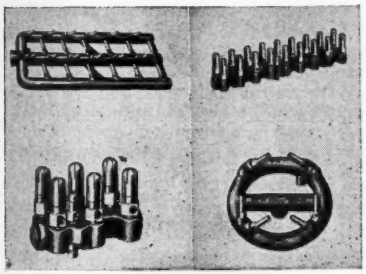

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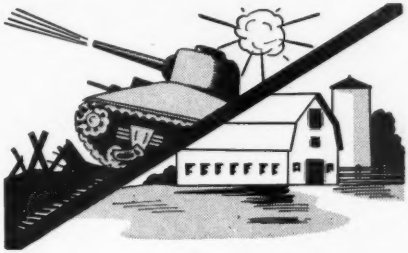
Appliance Burners

We make many types of Burner Units to fit a wide range of gas appliances. Nearly 200 appliance makers use Barber Burners. All Barber units correctly designed and equipped with proper jets to suit the appliance. Barber is the ONE burner which assures complete combustion on Butane-Propane or ANY OTHER gas. Appliance builders and fuel distributors give their customers better service, more economy, by advising the use of Barber-equipped appliances. Submit your burner problems to us. Complete new Catalog on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland, Ohio

When it's Over OVER THERE



There'll be more SINCLAIR LP-GASES OVER HERE

Today, as with all other essential materials, Liquefied Petroleum Gases are vital to the war effort—subject to first call of our fighting forces and defense industries.

When the war ends, LP-Gases will be in greater demand than ever—their many wartime uses will be diverted or converted to peacetime activities.

And as the peacetime requirements for Butane and Propane grow, the supply of Sinclair's LP-Gases will be increased to meet the needs of our distributors and their customers; for home and farm, in many industries, plastic and chemical plants.

SINCLAIR PRAIRIE OIL COMPANY
Liquefied Petroleum Gas Division
Sinclair Bldg. Tulsa, Oklahoma

UNITED STATES

Automatic Water Heaters

The "QUALITY" Line

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A COMPLETE LINE in size and price range . . . a heater for every purpose

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A. G. A. APPROVED

United States Heater Co.

COMPTON, CALIFORNIA

SPRAGUE METERS

for

PROPANE - BUTANE SERVICE

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Write for Particulars

SPRAGUE METER COMPANY

Bridgeport, Conn.
Los Angeles, Calif.
San Francisco, Calif.

fied petroleum gas manufacturing facilities, with operations to be carried on under the name "GASAIR, a division of Eaton Metal Products Co."

Manufacture and sale of products will be handled in San Francisco as they have in the past, at 1072 Bryant Street, San Francisco 3, Calif.

The new all-steel gas range of the Florence Stove Co., Gardner, Mass., which has two service drawers, polished aluminum burner heads and porcelain finish. The design permits the installation of a thermostat when government orders permit.

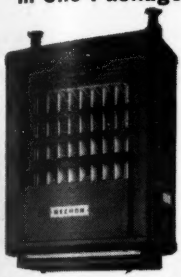
Dr. John J. S. Sebastian Joins Staff of Gas Institute

Dr. John J. S. Sebastian has been appointed to the research staff of the Institute of Gas Technology at Illinois Institute of Technology, it is announced by Prof. John I. Yellott, director of the Gas Institute.

Dr. Sebastian will serve as associate supervisor of the coal and gasification research section of the Gas Institute. He will be in general charge of research on fluidized gas generation, upgrading of low Btu. gas, and related subjects.

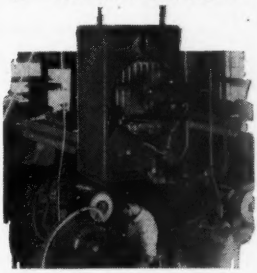
REZNOR UNIT HEATER REZNOR UNIT HEATER REZNOR UNIT HEATER

Clean Gas Heat All in One Package



You can install a self-contained Reznor Unit Heater, and then forget it. The Heater can be suspended or placed on floor.

Heat When You Need It—Where You Need It



You pay only for heat you use. Particularly adaptable to the mild season when you need heat only part of the time.

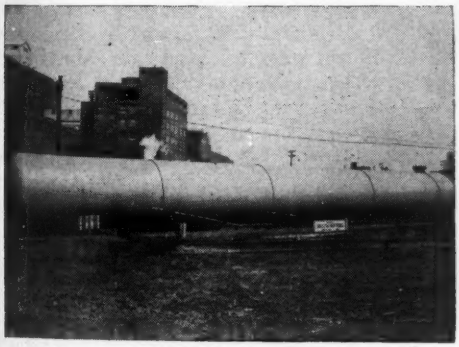
No Maintenance No Firing . No Dirt No Extra Equipment

A Reznor is entirely automatic. You need no fireman or boiler or anything except a gas connection.

Send for Catalog and Make Your Choice

REZNOR MANUFACTURING CO. **REZNOR** 304 JAMES ST., MERCER, PA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"



30,000 Gallon Water—25,000 Gallon Liquid Propane Capacity Storage Tank 8'4-13/16" O.D. x 76'9-5/16" Long

Complete bulk plants designed, fabricated and installed by experienced men. Detailed information and estimates furnished without obligation.

GAS PLANTS FOR MUNICIPALITIES

LEADERSHIP!

Quality - Safety Economy

Butane-Propane tanks fabricated in strict accordance with the ASME code; API-ASME Code; Dept. of Public Safety, Commonwealth of Massachusetts; and National Board of Boiler & Pressure Vessel Inspectors' regulations.

Bulk Tanks - Skid Tanks Truck Tanks for

Butane • Propane
Butane-Propane Mixtures

LANCASTER IRON WORKS, INC.

LANCASTER PENNA.

T. J. Ellis, Oklahoma state fire marshal and liquefied petroleum gas administrator.

Oklahoma Fire Marshal Is Inspecting All Tank Trucks

A statewide inspection of liquefied petroleum gas transportation trucks is being conducted by State Fire Marshal T. J. Ellis, administrator of the Oklahoma liquefied petroleum gas laws.

Ultimate objective of the inspection is to keep unsafe equipment off the highways and streets of cities. The inspectors for the department are securing complete data on each vehicle and tank truck, including names of manufacturers, manufacturers' and inspectors' serial numbers, code, date of delivery of tank, design pressure, tank capacity, details of mounting and dates of inspection and reinspection.

All data will be entered on a liquefied gas vehicle identification card certifying that the bearer is authorized to operate liquefied petroleum gas truck tank or trailer tank which has been duly inspected by the LP-Gas inspector.

AGA Testing Laboratories To Start Annual Inspections

Preparations are being made by the American Gas Association Testing Laboratories for annual inspections of approved gas appliances at the premises of manufacturers.

An announcement by R. M. Conner, Director, states that inspection trips will start on or about Oct. 1. Approval of equipment found on examination in the field to comply fully with Laboratories' records of approved models will be renewed for the year 1945.

This year the factories of approximately 170 manufacturers will be visited to inspect production models to insure that their construction is identical to that of the samples originally tested and approved. The majority of the trips will be made from the Cleveland Laboratories and the remainder from the Pacific Coast Branch. Ample advance notice of visits will be given manufacturers so that mutually satisfactory arrangements can be made.

In addition to factory visits, inspections will be made in warehouses where gas appliances are stored, in department stores and on dealers' sales floors. Visits are also occasionally paid to consumers' homes for the purpose of checking not only individual appliances but their installation as well.

PAW May Now Authorize Construction Projects of $100,000

PAW and WPB last month agreed on a plan giving greatly increased authority to PAW and providing that petroleum industry construction projects not exceeding $100,000 may be authorized by PAW.

Previously this authority had extended only to projects not exceeding $25,000.

Indispensable in dispensing

LIQUEFIED PETROLEUM GAS

BRODIE METERS

RALPH N. BRODIE CO., INC.

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LOS ANGELES CALIFORNIA

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HOMEMAKER'S FIRST CHOICE

YES, it's a Gas Circulator of the BRILLIANT FIRE standard that will get the call this winter because fuel restrictions will necessitate getting highest efficiency and maximum heat production from every heating unit installed. The alert dealer realizes this, too, and is investing his certificates wisely RIGHT NOW to insure having adequate stock when the call comes. Aside from the fully enclosed vented model B-1 shown above, there are other Two and Three Way Circulators in the BRILLIANT FIRE line, ranging from 20,000 to 75,000 Btu capacity . . . Ready Now. Safety Pilots and Auto Valves available for immediate shipment.

Write for your copy of the new BRILLIANT FIRE Bulletin 460-E showing full line of WPB releases together with specifications and prices.

THE OHIO FOUNDRY & MFG. CO.
STEUBENVILLE, OHIO

"Quality Heating Equipment Since 1846"

BRILLIANT FIRE
Brilliant Fire
GAS CIRCULATOR
NATURAL • MANUFACTURED • BUTANE • PROPANE

L.C. RONEY, INC.

meets the demands of the nation. Our plant has gone to war for the duration — but when peace comes, L. C. RONEY products for the LP-Gas industry will meet the demands of dealers everywhere. In the meantime—our stock of LP-Gas equipment is still complete.

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A Name That Stands for Quality

McNAMAR

Tanks for most all L.P.G. requirements

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McNAMAR
Boiler and Tank Co.

Tulsa, Okla. Salem, Ill.

Amendment to Ration Order Makes Ranges Easier to Get

Rationing restrictions on cooking stoves were relaxed slightly, beginning Aug. 5. Any person is now eligible for a certificate provided he has no other means of cooking, whether or not the stove is to be used in what is considered "essential" living or working space.

Conversion burners for ranges used in cooking may be obtained by dealers, distributors and manufacturers certificate-free. Consumers, however, continue to need ration certificates.

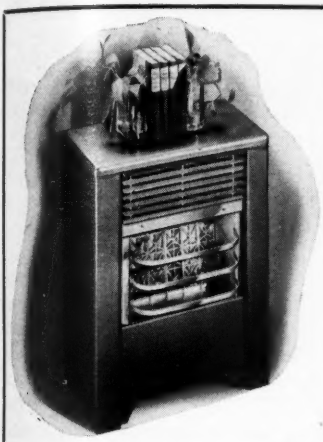
On Aug. 15, rationing restrictions were removed from gas ranges with non-metallic outside back or side panels. All stove dealers and distributors must report their inventories of this kind of stove not later than Aug. 25. They then may receive stove certificates with which they can obtain rationed stoves of the same stove type. Dealers must return certificates to persons who have ordered either of the two kinds of stoves if the stoves have not been shipped or transferred on or before the last day such stoves are rationed.

Changes Made In Order On Cooking, Heating Stoves

Several changes have been made in the regulation governing ceiling prices of domestic cooking and heating stoves.

The definition of a domestic cooking or heating stove now includes "a new stove of the type commonly used in households, camps, or trailers for cooking or heating purposes, regardless of the fuel or power used." It includes all space heaters, other than floor or wall furnaces or heaters intended to be built into or permanently attached in a building.

The order now specifically includes under the definition "manufacturer,"



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L. P. G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.

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FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

FEATURES THAT SELL

A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer—Safer, heaters, yet priced unbelievably LOW. Write for literature.

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We Are Supplying Many Dealers With Their LPG Systems and Supplies Under WPB Order L-86

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Come to the New Orleans Convention
Let's Get Acquainted

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Southern Gas and Equipment Co.

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P. S.—Don't forget old Frank and Henri.

For Safety
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ETHYL MERCAPTAN

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The ACCEPTED standard odorant for liquefied petroleum gases.

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BUTANE and PROPANE TANK HEADS

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* * * * STANDARD RADIUS * * * *
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DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"
Write for Head Catalog

The COMMERCIAL SHEARING & STAMPING COMPANY
YOUNGSTOWN, OHIO.

a seller of private brand stoves to jobbers or distributors if he also sold to retailers or users.

The order is designated as Amendment 1 to Maximum Price Regulation 64, and became effective Aug. 16.

Petroleum Products Stockpile Reduced 32% Since 1941

The nation's stockpile of essential civilian petroleum products has been reduced 32% since August, 1941. This is revealed in the monthly petroleum supply bulletin released Aug. 20 by the Petroleum Administration for War.

Deputy Petroleum Administrator Ralph K. Davies explained that stocks of industrial fuel oils, heating oils and civilian grade motor gasoline totaled 194 million barrels during peacetime 1941.

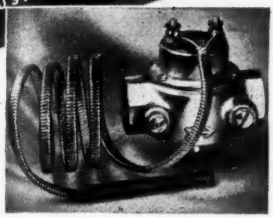
"This year, on Aug. 1, these same products were reduced to 132 million barrels," Mr. Davies said, "with civilian gasoline only within 63% of prewar levels, heating oils reduced 12%, and industrial fuels declining to 61% of peacetime levels. With present seasonal demands exceeding refinery production, the nation's stocks will continue to decline."

C. E. Heyns Becomes PAW Director Of Distribution and Marketing

Appointment of Charles E. Heyns, of Los Angeles, as district director of distribution and marketing for the Pacific Coast (District 5) was announced Aug. 17 by the Petroleum Administration for War. He fills the vacancy created by the resignation of C. B. Garretson.

Mr. Heyns has been with PAW since March, 1942 when he joined the District 5 organization as marketing analyst. He became assistant director of the marketing division in April

MR-2 AUTOMATIC GAS SHUT-OFF FOR WATER HEATERS, FLOOR FURNACES AND HOUSEHOLD APPLIANCES....



Necessary valve operating current is supplied by heat of pilot flame applied to thermocouple element. Failure of flame automatically closes valve which can be again opened by convenient push button. MR-2 is straight through gas type. Standard thermocouple length 30". Valve sizes: ⅜" to 1½". Available for manufactured or liquefied petroleum gases.

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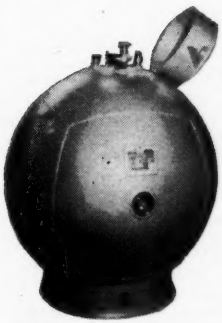

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SUPERIOR TANK & CONSTRUCTION CO.

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Phones: AN-4157 Night: Fairfax 1545

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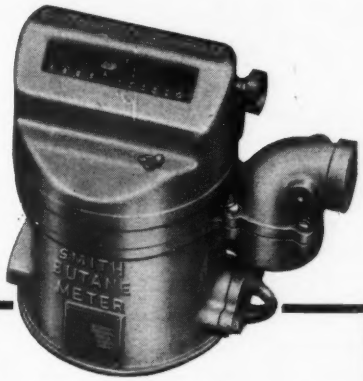

(Available on priority as are all other Smith Meters)

- positive displacement, Smith Rotary Principle
- 50 gallons per minute
- fast, steady flow
- low head loss
- no pistons or valves to wear
- made for corrosive and non-corrosive service
- optional counter mechanisms include: horizontal re-set; 6" or 10" vertical dial; set-stop counter with or without ticket printer.

SMITH METER COMPANY
SUBSIDIARY OF A. O. SMITH CORPORATION
Factories at Los Angeles and Milwaukee

Sales offices at New York, Chicago, Houston, Los Angeles. Local stocks at convenient points. Local agents in all principal cities.

1943 and, following the resignation of Mr. Garretson, served as acting director of the distribution and marketing division until his recent appointment as director.

A native of Angels Camp, California, Mr. Heyns came to PAW following 25 years in the oil industry on the West Coast.

Light Trucks Now Available for Essential Needs, Says ODT

The Office of Defense Transportation resumed the acceptance of applications for the purchase of new light motor trucks for essential civilian use on Aug. 15. The action is expected to dispose promptly of the small number of such vehicles remaining in dealers' stocks, ODT said.

District offices were told to screen applications very carefully in view of the very limited light truck supply.

GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas
GAS EQUIPMENT SUPPLY CO.

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CALIFORNIA HELP WANTED. IMPERIAL Gas Company, Station D, Box 1550, Los Angeles, California. Able-bodied men for cylinder filling plant, Huntington Beach, California. Work on regulators, tank painting, handling tanks, trucking. Also occasional service man desired by our 16 bulk plants-distributors of cylinders in California and Arizona. Also new bulk plant at Los Angeles. Opportunity for steady work for those who wish to learn the gas business.

EQUIPMENT FOR SALE

TWO MODEL BU40 SMITH BUTANE meters, 1½" connections. One factory reconditioned, one practically new. HOOD PETROLEUM CO., Box 672, Roswell, New Mexico.

EQUIPMENT WANTED

USED REGULATORS IN WORKING CONdition, junk regulators for parts, used gas cylinders and valves. Box 495, Syracuse, N. Y.

ONE 2500 TO 3000 GALLON TANK SEMItrailer for Butane. SCHAEFER BROS., Box 835, Cortez, Colorado.

PROPANE TANK TRUCK. WILL PAY cash. Mention size tank and kind of truck, etc. JACK PERRY, 135-12 222 St. Springfield Gardens, L. I., New York.

18,000 GAL. PROPANE STORAGE TANK or smaller, also propane pump, and propane compressor, need complete bulk plant equipment, but will buy items separately if necessary. Will pay cash. JACK PERRY, 135-12 222 St., Springfield Gardens, L. I., N. Y.

GAS HOLDER TANK, TWENTY-FIVE OR thirty thousand foot capacity, designed for fifteen pounds working pressure or could use number of smaller tanks. Write or wire price, shipping weight and shipping point to Mayor H. A. Coffield, Box 787, Marfa, Texas.

New Edition, Government Manual, Will Be Available Sept. 21

The summer 1944 edition of the United States Government Manual, the official handbook of the Federal Government, will be available for distribution after Sept. 21, the Office of War Information announces. The print order on the manual is being limited and individuals and firms are asked to place their orders in advance.

The manual can be ordered at a cost of $1 a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

ODT Moves Holley I. Smith To San Francisco Office

The appointment of Holley I. Smith as regional assistant director of the highway transport department in charge of property carrying vehicles for the Pacific Coast was announced Aug. 3 by the Office of Defense Transportation.

Mr. Smith leaves his former ODT post as district manager of the Seattle highway transport office to assume the new responsibilities as assistant to Robert Crowe, regional director in San Francisco.

ODT said that Floyd R. Ritchie, former assistant district manager of the Seattle office, will serve as acting district manager for that office, supplanting Mr. Smith.

Alabama Firm Changes Name To "Suburban Gas Co."

The Suburban Gas Co. is now the operating name of the LP-Gas firm that operated under the name of Butane Sales Co., Inc., according to Paul M. Jones, vice president and general manager.

The location of the office is the same as previously, Montgomery, Ala.

National Butane Gas Co.

Memphis, Tenn.

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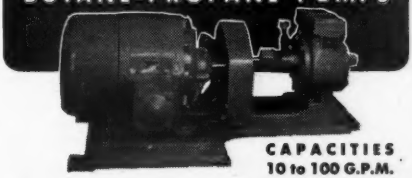

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SAFE . . . DEPENDABLE . . . REVERSIBLE ROTATION
NO CONTACTING METAL PARTS—POSITIVE DISPLACEMENT

These Harman Rotary Pumps are ideally suited for Bulk Plant and Service Station transfer of L P G between storage tanks, tank cars and automotive fuel tanks. Assembly consists of pump, back gear drive with guard mounted on bed plate. Also available with belt or direct connection. Operating efficiency assured by use of Harman principle utilizing a single rotor on a shaft rotating off center.

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